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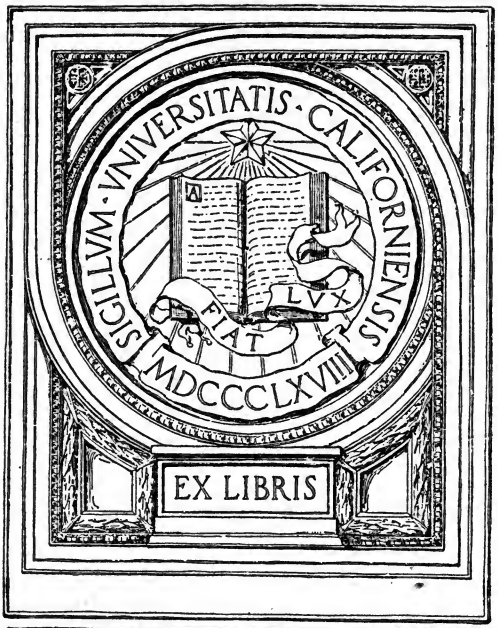
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CHILDREN'S PERCEPTIONS

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No. 12

CHILDREN'S PERCEPTIONS

An Experimental Study of Observation and Report in School Children

By

W. H. WINCH, M. A. (CANTAB)

External Member of the Board of Psychological Studies of the University of London; Chairman of the Committee of the Teachers' Guild of Great Britain and Ireland on Psychological Research in Schools; Lecturer for the London County Council on Pedagogical Methods in Schools; Inspector of Schools for the London County Council, now on leave of absence for purposes of Research in Experimental Pedagogy.

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EDITOR'S PREFACE.

Since the year 1900, when Binet published his well known volume upon suggestibility, and more especially since the labors of Professor Stern, of Breslau, during the next few years, there has arisen among psychologists a very keen interest in the psychology of testimony, or psychology of report, to use a more general term. The report, or *Aussage,* as the Germans term it, is an account, either oral or written, and either spontaneous or in response to questions, in which a person seeks to describe a scene or narrate an event that he has witnessed. The report, therefore, clearly implies and hinges upon a previous observation. Experiments with reporting are one way of testing the capacity of school children to observe, and previous experiments with school children by these methods have invariably elicited results and conclusions of pedagogical, as well as psychological value.

In the present monograph Mr. Winch has, happily, used not only the general methods of Professor Stern, but also the identical picture which figured so prominently in the original work of Stern and other German investigators. Moreover, the picture has been reproduced and inserted in the volume, so that all readers may compare the work of the English children with the actual test-object, and may use the

picture and the method for repeating this very interesting and profitable experiment upon themselves, their pupils, and others. In the text of the book will be found not only the statistical tables necessary for this comparison, but also actual reports of children of both sexes and of different ages and school grades. In short, the work is designed to encourage and facilitate the actual trial of the experiment by the reader, and should on this account be especially welcomed by teachers and others interested in experimental pedagogy.

Finally, Mr. Winch's results have an immediate bearing upon the vexed problem of the training of observation in children. They serve particularly to clear the ground for the consideration of this problem by showing what children do, and what they do not observe at different stages of their mental development. It is evident enough that we need to know these facts before we can proceed intelligently to formulate a system of exercises for training observation.

G. M. W.

AUTHOR'S PREFACE.

This volume is a research in experimental pedagogy.

In England and in other countries, those whose efforts are creating the new science of experimental pedagogy are inspired by a profound belief. They preach a revolution in education. But what kind of revolution, for we have had many before? Most thoughtful teachers indeed, and not a few educationists, have become a little tired of the fashion-like changes which, from time to time, sweep across the educational field; and, after much dislocation and annoyance, vanish within the limbo of the discredited and the forgotten. The believer in experimental pedagogy preaches another kind of revolution—a revolution in the method of determining educational needs and practices. He holds that, until an educational proposal has been submitted to definite tests under rigorously scientific conditions in the schools themselves, there can be no adequate ground for recommending it for general adoption. He holds also that the teachers should have a share in this work of experimental verification.

There is an increasing number of teachers who are willing—nay, anxious—to carry out scientific psychological and pedagogical experiments in schools,

if proper guidance be given them. But they desire to see how this experimental work bears on *their* work; they want it to be practical; and surely these requests are not unreasonable.

One hopes that, in education as in other arts, there will never be a lack of persons to come forward with new ideas. The believer in experimental pedagogy will accord, both to them and to their ideas, a most hearty welcome. "*But,*" he will say, "let us see how your proposals work *through* the teachers *in* the schools before we accept them." Science must become the handmaid of art in education as in other professions. To talk of a science of education before this experimental verification has been done is to use inflated language which has little reference to reality. But for educational ideas securely based on actual knowledge, gathered under school conditions with the help of teachers, there has never been, I believe, throughout the whole history of education, so favorable an opportunity of realization as at present.

W. H. WINCH.

London, February, 1913.

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CHILDREN'S PERCEPTIONS:

An Experimental Study of Observation and Report in School Children.

CHAPTER I.

HOW, IF AT ALL, CAN CHILDREN BE TAUGHT TO OBSERVE?

It is quite common, at the present day, in educational codes and courses of study, to find instructions to teachers to encourage observation among their pupils; and it is a general complaint that children leave their schools without much knowledge of the world which lies immediately about them (which, of course, tthey might have gained by observation), and, above all, without that inquiring glance which enables them rapidly to make themselves at home in a new environment. Both of these defects, it is asserted, are remediable by the process known as the cultivation of the power of observation. Briefly, that is the position today of the educational world in England, America and Germany; though with varieties of emphasis, and some divergence of views.

Side by side with this, there is the general opinion of the psychological world that observation, interpreted in a psychological way, is very little susceptible of improvement, if at all.

It is pointed out that the specialist, whilst acutely

alive to perceptual changes within the sphere of his own studies, is often so unobservant of other things that, by ordinary mortals, he is frequently regarded as stupid.* And it is argued that improved discrimination in any one sensory department, say that of vision, or even in aspects of the same sense, form, color, etc., is not accompanied by improvement in others, even within the same sensory field; and, *a fortiori,* would certainly not involve improved discrimination in another sensory field, for example, in that of sound. Consequently, the all-round training of the 'faculty of observation'—a phrase beloved by educationists—must be an absurd ideal, because it is destined never to be realized; it simply can't be done. The psychologist, too, lays stress on the inhibitory aspects of mental life—an aspect too often lost sight of by educationists. So much observation of plant life, shall we say, means less and not more observation, shall we say, of animal life or machinery. Therefore it is argued that we should cease to try to cultivate an all-round power of observation; let us rather confine ourselves to encouraging observation within those fields of knowledge and within those sensory departments in which the observations are likely to be industrially or aesthetically important to the pupil.

Where such diametric conflict of opinion exists, it is fairly certain that the parties to the dispute do not mean altogether the same thing by the terms they use. The educationist maintains that he is not thinking simply of sensory discrimination, and he is

*Winch, *Problems in Education.* London, 1900; page 32 *et seq.*

apt to accuse the workers of the laboratory of understanding him in too limited a sense, and of arranging their experiments in so artificial a way that the results obtained are not applicable either to the work of the school or to the work-a-day world outside it.

Fortunately for education and, I think, for psychology also, a *rapprochement* seems likely to take place. In Germany, a good deal of work bearing on these issues has been done under the title of '*Aussage,*' which I have translated into English as the Declaration of Perceptual Judgments; and in America much the same kind of experiment has been worked at and described as 'Fidelity of Report.' In England, we shall probably, in the educational world, continue for some time to use the term 'Observation,' whilst the more definite term 'Perception' will be confined to the psychologist. But the differences involved imply more than is indicated by the use of different terms.

Observation, as the educationist understands it, implies sensory discrimination; it implies also perception, that is, the identification or judgment of what is sensorily apprehended; it also implies the expression of these judgments in linguistic or graphic forms. And the educationist argues that, unless the psychological experiments which are conducted to settle his difficulties take cognizance of all the aspects of the case important to him, he cannot be expected to change his practices in consequence of their results. This contention may be granted with the proviso that, so far as is known at present, he must admit the declaration of the psychologist against his all-round faculty of observation, and

must show transfer from one field of observation to another before basing his practices upon a belief in it. Observation should lie within those sensory fields and be directed to that subject-matter, which, on industrial or aesthetic grounds, it is desirable to cultivate and learn.

The argument from the well-known narrowing influence of scientific specialism is countered by the growing knowledge of the character of some of our best attested correlations. These specialists, compared with children, are veritable giants in observation. In the physical world, we know quite well that giants are stupid people. But if we argue in consequence that big children are more likely to be stupid than little ones—a not uncommon opinion even among teachers—we shall be flying directly in the face of the facts. The Chicago Department of Pedagogical Investigation showed, years ago, that the reverse is the truth. Age for age, big children are mentally in advance of smaller ones. The same conclusion resulted from the facts collected by me in London some eight years ago, and I believe corresponding evidence has been collected in Germany. So that, though bodily growth, pushed to its extreme limit, as in giants, is certainly correlated negatively with mental growth, that relationship is not true in general, and certainly not among children, for among them bodily growth and mental growth in large measure vary together.

Hence we may not argue from the limiting nature of the specialist's absorption—the one seeing nothing but plants, another nothing but machines, another nothing but microbes, to which ends their ob-

servation has been solely directed, and is indeed efficient for no other purpose—that the limited training of observation in school children would have a similarly contracting effect. Moderate amounts of observational work might expand the observational powers in many directions rather than contract them. A child *might* see more in machinery because he had been trained to see something in plants.

To all this the apostle of the doctrines of experimental pedagogy can only say: "Let us try it and see." For he is convinced only that argument from extreme cases in adult life to what happens with children is worse than useless; it is misleading.

Moreover, it is argued that the extreme anti-faculty doctrine implies too early a commencement of a child's life work. And it is asserted that there is a necessary field for observation in the early years of childhood, which is not, and cannot be specialized; the child must learn to observe the realities and the pictorial representations of the world around him. Here is a common basis upon which facultists and anti-facultists can agree. If this early observation helps afterwards to the specialized observation required in the world of work, so much the better. But if it does not, it is necessary for its own sake. And no one doubts that there are some common elements of sensory discrimination and some common elements of expression, whose improvement will be common to both kinds of subject-matter. That they do not go so far as used to be thought will no doubt influence the school-curriculum in its later years; its subject-matter will become more specialized and 'futures' will be dealt in more largely than at pres-

ent. But though 'training of the faculty' is not everything, far from it, we ought, notwithstanding, to find out the most disciplinary method for the teaching and learning of that which, on other grounds, we have decided should be acquired.

Let us suppose we have decided that every child shall be taught to observe the world around him. How shall it be done? May we ever use pictures? German schools have, for years, used them in connection with their *Anschauung-Unterricht.** The teacher asks a number of stereotyped questions about a picture and the children answer them, also in stereotyped form, with much attention to correct linguistic expression. This exercise has its uses as an introduction to German Composition (Germany is a country of dialects, be it remembered), but I saw no real effort of actual perception, thought and memory, such as is required by *Aussage* exercises—also German—framed by educational psychologists.

We require so to teach and train that our pupils know more about the lesson next week than they do immediately after it, and are made more and not less expert in attacking all forms of analogous material.

Impossible? A counsel of perfection? Yes, it certainly is, so long as education, as with us in England, means as much talking by the teacher as it does at present.

But it is not impossible; nay, it is the ordinary course of things when lessons are so chosen that, with effort, the children can do them, and when their

*W. H. Winch, *German Schools*, page 203 *et seq.*

mental activities are fully enlisted in the work. I am not arguing that there is *no place* for teaching. On the contrary. I have tried to estimate its value statistically as compared with practice alone.* But there are many valuable mental exercises where teaching can profitably become a minimum, and where self-expression and self-correction can be wholly employed. Among such exercises are these *Aussage* or 'observation' lessons. But it is time to discontinue didactics. A necessary preliminary to a real advance in any educational question is a dispassionate survey of what actually exists psychologically in its bearings on the dispute. Germany and America have shown the lead in *Aussage* work with children. I offer this English contribution with full recognition of the claims of my forerunners.

In one important respect—there are many minor modifications—this work claims to constitute an advance. I have tried to make a statistical estimate of the complex of functions called 'observation.' Such an estimate is imperative if we are ever to come to any definite conclusions about many of the questions raised in this research. What children *do* observe and *how much* they observe ought to be known preliminaries to all educational theory about observation, and this research is offered in the hope that the following experiments may help to advance our knowledge in both these respects.

*How a Teacher can test the Value of his own Methods. *Child-Study*, July, 1912.

CHAPTER II.

GENERAL PLAN OF THE EXPERIMENTS.

The work about to be described was modelled on the 'Aussage' experiments of Professor Stern with his own children described in *Erinnerung, Aussage und Lüge in der ersten Kindheit.**

Very broadly, the method of the experiment was the same in all cases, though there were minor modifications in detail. First, the child or children who were taking part in the experiment were told that a picture was about to be shown to them, and that they were going to be asked to tell all about it afterwards. Then the picture,† *Das Frühstück Bild,* was shown for exactly one minute, after which the child was invited to say what he had seen in the picture. The statement then made was free and unprompted in any way, and is alluded to henceforward as 'The First Spontaneous Report.' After this report had been given, the experimenter asked a number of questions, and the child answered them. These answers will be alluded to as 'The First Set of Answers.' Then, exactly one week later, on the same

*I wish to tender my thanks to Professor Marie Dürr-Börst and to Professor William Stern for permission to utilize the picture *"Das Frühstück Bild."*

†This picture will be found in the front pages of the book in a detached form, so that the reader may easily refer to it in conjunction with any and every page of the monograph.

day of the school week, at the same time of day, and after the same school lesson as before, without any further exhibition of it, the child was asked once more to tell about the picture . The statement then made will be referred to as 'The Second Spontaneous Report.' The questions previously asked were repeated; the answers given on this occasion will be referred to as 'The Second Set of Answers.' Finally, the picture was shown again immediately after the Second Set of Answers had been given, and the children were told to put anything right which they had said wrong. The statements then made will be referred to as 'The Self-Correction.' For each child, therefore, there are five separate sets of data—a First Spontaneous Report, a First Set of Answers, a Second Spontaneous Report, a Second Set of Answers, and a Self-Correction.

The first work was done in London in two municipal infants' schools, in one boys' school, and in one girls' school. In the case of the infants—children from 3 to 7 years of age—the work was done individually; that is to say, each child was taken separately by the experimenter in a room apart. In the boys' and girls' schools the children were taken in groups or classes. I propose first to describe the work done in the poorer of the two infants' schools. By 'poorer,' I mean situated in a neighborhood of somewhat inferior social class.

CHAPTER III.

FIRST SERIES OF EXPERIMENTS. SCHOOL A.

This school is a municipal school of medium size, according to English ideas of size—a German or an American would call it a small school. It contains some 400 children whose ages range from 3 to 7 years. It is situated in a poor neighborhood, though not in one of the poorest. If the elementary schools of London were graded into four groups in accordance with the social class of the children attending the schools, this school would be found in the third group, that is, towards the bottom end of the scale. The school staff is a good one, and the Head Mistress has had much practice in experimental work. About one-third of the observations were made by the Mistress and myself jointly; the remainder were made by the Mistress alone.

Even with the unstinted aid of the Mistress, it would have been almost an impossibility to take *every* child in the school individually through this *Aussage* experiment; but it was hoped that, by very careful choice of representative pupils of every age from 3 to 7 years, the inaccuracy due to selection might be, if not obviated, at least reduced within very narrow limits.

First we found out how many children there were of each age in the whole school; then we decided to

take ten of each age, that is, ten 3-year-old boys and girls, ten 4-year-old boys and girls, and so on. All the children of one age would not be found in the same class or grade of mental proficiency; thus, every child of 6 years would not be found in Grade III (an infant-school grading); some would be higher and some would be lower in the school. So the ten 6-year-old children were selected partly from one class and partly from another, according to the proportion of 6-year-old children contained in each class in relation to the total number of 6-year-old children in the school. A similar procedure was adopted for the selection of typical children of other ages. A further condition was insisted on: the children chosen from each class were to consist of clever, medium and dull children in equal proportions, and the children were chosen so that, for each age-group, the average age would be about half-way between the limits of age for the group. Thus the 7-year-old children would be so selected that their average age would amount to 7 years 6 months; the 6-year-old children would average 6 years 6 months; and so on. The work was necessarily spread over many months, and there is always a possibility that the teachers of the classes, unless they are accustomed to experimental work, may, if aware of the nature of what is being done, set themselves, as it were, to 'teach up' to it. Consequently, great care was taken that the character of the exercises should not be made known to the class teachers until every child had done all that was required. Subsequently, the method of the experiment, with certain modifications, was adopted in this school as a method of teaching; but,

at the time of the experiment and previous to it, no such methods were in operation.

As will be remembered, the plan of the experiment required that the first spontaneous report should be given just after the child had looked at the picture for one minute. The first interrogatory followed immediately. Then a week later, a second report was given and a second interrogatory was made. At the conclusion of the second interrogatory, the self-correction was asked for in the way already explained—the self-correction involving a look at the picture for the second time. The four previous exercises, namely, the First Report, the First Set of Answers, the Second Report, and the Second Set of Answers, all depended wholly upon observations made by the child during one minute at the beginning of the experiment.

At this juncture I ask those who read this account, if they are not already experts in experimental work with children, to endeavor to take this experiment themselves, with one or two children at least. It will add to the ease with which the following account is comprehended if the exercises are taken with the self-same picture, namely, *"Das Frühstück Bild"* (The Breakfast Picture).

I think also it will add to the facility with which the summing up of my results and the subsequent discussion are apprehended, and further will lead to a more critical comprehension of them, if I give some actual examples of what was done by the children individually, and show in detail how the exercises were marked.

I. The Work of the Three-Year-Old Children of School A.*

Ena M——, aged 3 years and 10 months, gave her First Spontaneous Report at 10.30 a. m., on May 6th, 1910. It ran as follows:—

Ena M——'s First Spontaneous Report.

"A little boy—a mother—a chair—a table—dripping—basin—a flower—a dolly."

Method of Marking the Spontaneous Reports.

I suggest the feasibility of making a numerical estimate of these reports, and I propose to do so on a basis of correct units of observation. Observation, in the sense in which it has always been understood by English pedagogy, implies perception and the expression of it: there is an additional factor here, for memory for a short period, a very short period, is also implied.

The child, Ena M——, is obviously in what has been called the enumerative stage; she names persons and things without any account of actions, of qualities, or of the spatial relations between the persons or things in the picture. Some of her identifications are not correct, but we have to ask ourselves if they are allowable as fair interpretations for an English child? The picture is a German one, and some of the objects, as, for example, the 'black

*It must be understood at the outset that reliable results with very young children cannot be obtained by persons who are unaccustomed to work with them. A combination of sympathy and gentle insistence are required in the experimenter. The questions are large in number for little ones, and irrelevancies and periods of inattention are to be expected. The experimenter with patience will lead the children back again to the matter in hand.

bread' and the school boy's 'satchel,' are not in forms with which English children are acquainted. Consequently, a certain latitude of identification was allowed; 'basin,' for example, was accepted as a correct description of the bread in the picture. But it was not thought that either 'dripping' or 'a dolly' were fair interpretations of any actual perception, so that no marks were allowed for these. The word "boy" is qualified as "little boy;" but teachers of young children are of opinion that it is not a real qualification; they hold that 'boy' and 'little boy' are identical in meaning for young children; so that no additional mark was given for the apparent qualification.

Thus Ena M—— receives 6 marks for her first spontaneous report; one for 'little boy,' one for 'mother,' one for 'chair,' one for 'table,' one for 'basin' and one for 'flower.'

I append, immediately following, Ena M——'s Second Spontaneous Report given at 10.30 a. m. on May 13th. I place the two reports in proximity for convenience of comparison, but, in actual operation, the First Interrogatory immediately followed the First Report, and these were separated by an interval of exactly one week from the Second Report.

Ena M——'s Second Spontaneous Report.

"A chair—a table—a box—a flower—a boy—the mother—basin—a knife."

It may be profitably noted that the two inaccurate enumerations, namely, 'dripping' and 'a dolly', which were given in the First Report, have dropped out, and two new items have come in. These are

'box' and 'knife,' both of which were referred to in the first interrogatory a week previous. The additional units of correct observation, therefore, so far as this child's work is concerned, may be due to the suggestive influence of certain questions in the first interrogatory. Whatever be the cause, the second report, as indeed is *almost invariably the case with children,* contains more units of correct observation than the first. The mark for the Second Spontaneous Report is easily seen to be *eight* as compared with *six* for the First Spontaneous Report.

I will now show Ena M——'s answers to the First Interrogatory and Second Interrogatory, side by side. They are given thus for purposes of convenience, but there was exactly a week's interval between them; and the Second Set of Answers to Questions actually followed in time the Second Spontaneous Report. The reader is requested to compare the answers, question by question, with the actual picture.

ENA M——'S FIRST AND SECOND SETS OF ANSWERS GIVEN ON MAY 6TH AND MAY 13TH, RESPECTIVELY, AT 10.35 A. M.

QUESTIONS.	FIRST SET OF ANSWERS.	SECOND SET OF ANSWERS.
1. Which side of the table was the lady standing?	*On the other side (showed wrongly).*	*Over there (showed wrongly).*
2. What was she doing?	*Holding some pudding.*	*Making a pudding.*
3. How was the lady holding what she had in her hand?	*Like that (showed wrongly).*	*Like that (showed wrongly).*
4. Had the lady anything else in her hand beside the thing you have told me about?	*Yes—dripping.*	*Yes—dripping.*
5. What clothes was the	*A frock.*	*A dress and a pin-*

Questions.	First Set of Answers.	Second Set of Answers.
lady wearing?		*afore.*
6. What sort of a hat had she?	*A blue hat.*	(No answer.)
7. What was she wearing on her feet?	(No answer.)	(No answer.)
8. Could you see her feet?	*Yes.*	*Yes.*
9. Had she a pinafore or apron on?	*Yes.*	*Yes.*
10. Had she a frock on?	*Yes.*	*Yes.*
11. What color was her blouse or the top part of her frock?	*Green.*	*Blue.*
12. What color was her skirt?	*Blue.*	*Green.*
13. What color was her apron or pinafore?	*Green.*	*Green.*
14. What color were her boots or shoes?	*Yellow.*	*Blue.*
15. What color was her hair?	*Green.*	*Green.*
16. What was the boy doing?	*Playing and had some cake.*	*Playing and had some cake.*
17. How was he holding what he had in his hand?	(*Showed wrongly.*)	(*Showed wrongly.*)
18. Where were the boy's feet?	*On the floor.*	*On the floor.*
19. What clothes was the boy wearing?	*Trousers on.*	*Had a coat and trousers on.*
20. What color was the boy's coat or jacket?	*Green.*	*Green.*
21. What color were the boy's trousers or knickers?	*Blue.*	*Green.*
22. What color were the boy's boots or shoes?	*Green.*	*Green.*
23. What color were the boy's stockings?	*Green.*	*Green.*
24. What color was his hair?	*Green.*	*Green.*
25. What sort of boots had the boy?	*A pair of boots.*	*A pair of boots.*
26. What sort of shoes had he?	*Blue.*	*Blue.*
27. Did you see anything under the boy's chair?	(No answer.)	(No answer.)
28. Did you see a jug or vase?	*Yes.*	*Yes.*

Questions.	First Set of Answers.	Second Set of Answers.
29. What color was the jug or vase?	*Green.*	*Green.*
30. Did you see anything on the floor near the jug or vase?	(No answer.)	(No answer.)
31. What color was the table?	*Green.*	*Green.*
32. What else was on the table besides the thing the lady was holding?	*Butter.*	*Dripping.*
33. Did you see a knife?	*Yes.*	*Yes.*
34. Whereabouts on the table was it?	*There (showed wrongly).*	*There (showed wrongly).*
35. What color was the knife?	*Green.*	*Green.*
36. Did you see a flower-pot?	*Yes.*	*Yes.*
37. Where was it?	*On the floor.*	*On a box.*
38. What color were the flowers?	*Blue.*	*Blue.*
39. How many flowers were there?	*Three.*	*Four.*
40. What color were the leaves?	*Blue.*	*Blue.*
41. How many leaves were there?	*One, two, three.*	*Three.*
42. What color was the flower-pot?	*Green.*	*Green.*
43. What color was the box?	*Green.*	*Green.*
44. What could you see through the open window?	*A lady.*	*A lady.*
45. What could you see through the open door?	(No answer.)	(No answer.)
46. Did you see a window?	*Yes.*	*Yes.*
47. What color were the walls of the room?	*Green.*	*Green.*
48. What color was the carpet?	*Green.*	*Green.*
49. Did you see a carpet?	*Yes.*	*Yes.*
50. What room was it?	(No answer.)	(No answer.)

It will probably be useful for illustrative purposes if I give one more complete record of the work of a three-year-old child before passing on to a general

discussion of the questions and answers of these three-year-old children. The work given below is that of a boy, but the reader is cautioned against drawing any general conclusions about sex differences on the basis of this and the preceding '*dossier.*'

On May 6th, 1910, at 11.30 a. m., Robert H——, aged 3 years 8 months, saw the picture for one minute and made his First Spontaneous Report. It ran thus:

Robert H——'s First Spontaneous Report.

"A little boy—a lady—flowers—a cupboard—a vase—a pudding—a table—a barrow on the floor."

Robert is still almost confined to the enumerative stage. He mentions nine persons and things, and for this receives nine marks for correct observation, for 'barrow' is regarded as a fair identification of the German satchel for a three-year-old English boy. But Robert is passing beyond the enumerative stage; he has *placed* the 'barrow' in relation to the floor by using the preposition 'on.' This positional reference should also carry a mark. It is probable that, as representing a higher mental stage than mere enumeration, it should carry more than one mark; but partly to save complexity of marking and partly because I did not know how many marks to give, I decided, at least provisionally, to give one mark for all positional references. Robert therefore receives 10 marks for his first Report.

Then followed his first interrogation, the answers to which I will give later.

On May 13th, a week later, at 11.30 a. m., he gave

his second report without again seeing the picture. It ran thus:

Robert H——'s Second Spontaneous Report.

"A boy on a chair—a lady against the table—a floor—a box—a flower—a vase—a pudding—a barrow on the floor."

He enumerates the same things as before, with the addition of the chair. This time he has made three positional references, the boy is 'on' a chair, the lady is 'against' the table, and, as before, the barrow is 'on' the floor. He mentions 'floor' twice, but, of course, does not receive an additional mark because he mentions it a second time. For this report Robert receives 13 marks, an improvement of 30 per cent. on his first record.

Then followed immediately his second interrogation and his self-correction exercise. The results of the two interrogations follow:

ROBERT H——'S FIRST AND SECOND SETS OF ANSWERS GIVEN ON MAY 6TH AND MAY 13TH, RESPECTIVELY, AT 11.35 A. M.

QUESTIONS.	FIRST SET OF ANSWERS.	SECOND SET OF ANSWERS.
1. Which side of the table was the lady standing.	*There (showed wrongly).*	*There (showed wrongly).*
2. What was she doing?	*Making a pudding.*	*Making a pudding.*
3. How was she holding what she had in her hand?	*Like this (showed wrongly).*	*Like this (showed wrongly).*
4. Had the lady anything else in her hand besides what you have told me about?	*Yes, Bird's* custard.*	*Yes, Bird's custard.*
5. What clothes was the lady wearing?	*Clothes.*	*A lot of clothes.*
6. What sort of a hat had she?	*Blue.*	(No answer.)

*Bird is the name of a custard maker in England.

Questions.	First Set of Answers.	Second Set of Answers.
7. What was she wearing on her feet?	*Boots.*	*Boots.*
8. Could you see them?	*Yes.*	*Yes.*
9. Had she a pinafore or apron on?	*Yes.*	*Yes.*
10. Had she a frock on?	*Yes.*	*Yes.*
11. What color was her blouse or the top part of her frock?	*Blue.*	*Blue.*
12. What color was her skirt?	*Red.*	*Blue.*
13. What color was her apron or pinafore?	*White.*	*White.*
14. What color were her boots?	*Red.*	*Black.*
15. What color was her hair?	*Black.*	*Black.*
16. What was the boy doing?	*He was eating another pudding.*	*Eating a piece of pudding.*
17. How was he holding it?	*Like this (showed wrongly). It was made of custard. Bird's, you know, don't you; Bird's for the custard?*	*Like this (showed wrongly).*
18. Where were the boy's feet?	*On the big stick under the chair.*	*On the big stick under the chair.*
19. What clothes was the boy wearing?	*He had a blue jersey and blue trousers.*	*Blue trousers, blue waistcoat and blue jersey.*
20. What color was the boy's jacket or coat?	*Red.*	*Blue.*
21. What color were his trousers or knickers?	*Blue.*	*Blue.*
22. What color were his boots or shoes?	*Red.*	*Black.*
23. What color were the boy's stockings?	*Black.*	*Black.*
24. What color was his hair?	*Red.*	*Red.*
25. What sort of boots had the boy?	*Black.*	*Black.*
26. What sort of shoes had he?	*Red.*	*Red.*
27. Did you see anything under the boy's chair?	*Yes.*	*Yes.*

Questions.	First Set of Answers.	Second Set of Answers.
28. Did you see a jug or vase?	*Yes.*	*Yes.*
29. What color was the jug or vase?	*Blue.*	*Blue.*
30. What did you see on the floor near the jug or vase?	*A thing.*	*A barrow.*
31. What color was the table?	*Red.*	*Red.*
32. What else was there on the table besides what the lady was holding?	*Bread and butter and tea.*	*Bread and butter and tea.*
33. Did you see a knife?	*Yes, just by the side of him.*	*Yes, just by the side of him.*
34. Whereabouts on the table was it?	*By the table (showed wrongly).*	*By the table (showed wrongly).*
35. What color was the knife?	*Black, and blue on it.*	*Black, and blue on it.*
36. Did you see a flower-pot?	*Yes.*	*Yes.*
37. Where was it?	*On the cupboard.*	*On the box.*
38. What color were the flowers?	*Blue.*	*Blue.*
39. How many flowers were there?	*A lot.*	*A lot.*
40. What color were the leaves?	*Red.*	*Red.*
41. How many leaves were there?	*A lot.*	*A lot.*
42. What color was the flower-pot?	*Red.*	*Red.*
43. What color was the cupboard or box?	*Blue.*	*Blue.*
44. What did you see through the open window?	(No answer.)	*Nothing.*
45. What did you see through the open door?	*Houses.*	*Horses and carts.*
46. Did you see a window?	*Yes.*	*Yes.*
47. What color were the walls of the room?	*Blue and white.*	*Blue.*
48. What color was the carpet?	*Blue and red.*	*Blue.*
49. Did you see a carpet?	*Yes.*	*Yes.*
50. What room was it?	*The kitchen.*	*The kitchen.*

Robert H—— is marked as having 17 correct answers the first week and 21 the second week. On the

first occasion only two color names were applied correctly, and these answers may be random shots; for a subsequent investigation showed that he called red things blue; even his own red Jersey, to which he was well accustomed, was called 'blue' quite unhesitatingly. As might have been expected, he knew the names of boys' clothes and mentioned various garments quite spontaneously, whilst he 'hedged' in the case of the lady's clothes by vague expressions; and, though the names of the lady's clothes were used in the questions, he remained quite vague. But he is certainly one of the most intelligent of the 3-year-old boys in this school, and had correctly noticed many things in his one minute's look at the picture. As is usually the case, his second interrogatory is better than his first; and a careful comparison of his second week's answers with those of his first may indicate how far the actual suggestiveness of the first week's questions have favorably or unfavorably influenced his second week's answers. The lady's skirt, which he calls "Red" the first time, he calls "Blue" the second time, and gets a mark for his second answer; this may very well be a chance shot. He calls the lady's and the boy's boots "Red" the first time and "Black" the second time, and scores marks for what is probably the knowledge that boots are black rather than for correct observations of the boots in the picture. He recovers from two suggestive influences which somewhat overcame him in the first week. The lady's hat, which is nonexistent, he calls "Blue" the first week, but the second week gives no answer to the question "What sort of a hat had she?" To the question "What did

you see through the open window?'' he gives no answer the first week, but says, ''Nothing,'' unhesitatingly, the second week. The walls of the room are correctly described as 'blue' the second week, but are described as 'blue and white' the preceding week. In all other respects he repeats himself almost word for word. Two of his identifications change; the 'cupboard' becomes the 'box;' this may have been due to the questions in which the word 'box' was used. 'A thing' becomes a 'barrow;' these expressions being used for the school boy's satchel.

Method of Marking the Answers to the Questions.

I hope that *Aussage* experiments with this Breakfast Picture will be made in other English and in American schools, and that teachers and psychologists will wish to compare the results of their work with those of mine. If this is likely to be done, it becomes of extreme importance for me to make quite clear how the answers were marked. What is a *right* answer? Hasty persons, among whom there are *some* educationists, will be very likely to pooh-pooh such a question, and to regard it as superfluous. But it is a very necessary one. Let me put it in another form. How far shall the child be permitted to deviate from our adult perceptual attitude and our knowledge before we call his answer wrong? With this form of the question in mind, I propose to discuss the questions and the kinds of answers which were accepted. The questions vary much in difficulty, and I suggest to the teachers that they put a mark against those which they think the most difficult, those which they think of medium difficulty, and

those which they think are easiest for children. I can promise them some interesting surprises when they come to compare their preconceived opinions with the results actually found.

Question 1. Which side of the table was the lady standing? The child who observed the picture and was questioned about it afterwards, stood before an actual table, at one end, so that the right-hand side of the table in the picture where the lady was standing, corresponded with the right-hand side of the actual table, where the child was standing. Young children would therefore almost invariably *point out* where the lady was standing, as if she were standing at the very table which was then in front of them. If they pointed anywhere along the right-hand side of the table, their answer was accepted as correct. All the 3-year-old children in this school *pointed out a place;* they all used some words in addition, such as, "There," "Over there," "On the other side;" and they all, except one, pointed out the wrong side of the table, or to the front, or to the back of it. This is in striking contrast with the work of senior children, as we shall see more fully by-and-by. When we come to classify the questions later on, we shall call this a 'position' question, and we shall scarcely be surprised to find little children with an imperfect apprehension of position; but when we see *how* imperfect we shall be more careful in our teaching than we now are to refrain from using positional terms to them which are almost certain to be misunderstood.

Question 2. What was the lady doing? This question apparently admits of a large variety of answers. A sophisticated adult might, with consider-

able justification, say, "Nothing;" but that is not usually what children say. Ena M——, as we saw above, said, "Holding some pudding" for her first answer, and "Making a pudding" for her second answer. Other 3-year-old children said, "Cutting pudding," "Holding the pie," "Cutting the bread" (three children said this), "She had a pudding," "Making a pudding," "She's got a basin," "Putting the dish away." All the answers are accepted in which it is obvious that the children have observed that the woman is holding something. That is the *action* of the woman which the picture portrays. But if the children call the thing she is holding a pie, a cake, a basin, a dish, as well as bread, are their identifications to be accepted? I asked a large class of English students—principals and other experienced teachers—what *they* thought the lady was holding. Only one knew it was a loaf of the German 'black-bread,' which had figured so hugely on English placards (but drawn wrongly) during the tariff reform and free-trade controversy at recent Parliamentary elections. The majority plumped for Christmas pudding (they had recent memories of their own) and what Englishman shall say they were wrong! Some answers—a very few—were given to this question which did not deal with what the woman was holding, such as, "Looking down at the table." They were accepted as indicating an activity of the woman, though a less obvious one than that of holding the cake; but no 3-year-old child gave such an answer.

Question 3. How was the lady holding what she had in her hand? This is another 'position' ques-

tion; but much more difficult than Question 1. No 3-year-old child was able to answer correctly; eight of the ten of them showed by means of their own arms and hands how the lady was holding the thing, and two of them said, "Like this;" one said, "With two hands;" another said, "As if she was going to cut the bread;" another, "With that hand;" another, "In her hand;" but none of the answers showed that the children had observed and remembered that one of the woman's hands and forearm were round the front of the bread, and that the other hand was lying flat, palm downwards, on an upper edge of it. To expect a correct *verbal* description of these positions, even from older children, would be absurd, but I must confess to some surprise at finding no spontaneous observations, or almost none, which seemed to embrace these points.

Question 4. Had the lady anything else in her hand beside the thing you have told me about? A reference to the picture will show that the lady had nothing else in her hand. What then is the purpose of such a question as this? Inspectors and teachers frequently complain that children "will *say* anything," by which they mean they will accept whatever is suggested to them, even if it be put indirectly as a question. And a frequent complaint against many of our methods of elementary education is based upon the opinion that much of our apparently excellent teaching results in a sort of hypnotism of the pupils by the teacher. The teacher conducts the lesson and the pupils strike in here and there with wonderful success, but with little, if any, real thought on their own part. In the language of

the psychologist, children are eminently suggestible. One of the tasks of education is to break down this suggestibility, and throw the children on their own intellectual resources. This question then is a question to test suggestibility. Ena M—— said in answer to this question, "Yes—dripping." Other answers given by 3-year-old children were, "Only a spoon;" "A big pie;" "Yes, Bird's custard;" "Yes, milk" (this child in the second interrogatory said stoutly "No"); "Yes, the dish;" "Yes, a knife;" "Yes, she had" (this child corrected herself the week after, and said "No, only the pudding"); "Yes, a loaf;" "A knife," Not a single child resisted the suggestion at first; two of them repeated what they said before, namely, "A big pie" and "A loaf;" perhaps they did not understand what was meant by that part of the question which ran "besides the thing you have told me about," and just told us what they had told us before about what the lady was holding.

An interesting point is that, a week after, when they were questioned again, the suggestion did not operate with two of them, for they rejected it; though all the rest repeated in identical words just what they had said the week before. There is a striking difference in the way in which older and more intelligent children respond to questions like this, as will be seen more fully later on.

Question 5. What clothes was the lady wearing? We decided to accept as right answers any which included the frock and pinafore or apron; thus "frock and apron," or "skirt, blouse, and pinafore," or "skirt, bodice, and apron" would all be accepted

as correct. No 3-year-old child gave a correct answer the first week, though some did the second week. Three of these children repeated the word 'clothes' for both the first and second time of asking, and got no further. The mental operation due to the subsequent questions of the first week *may* have produced the improvement found on the second occasion.

Question 6. What sort of a hat had she? This is another question to test suggestibility; since the lady was not wearing a hat. Hats of various colors were ascribed to her, white hats, dark hats, black hats, blue hats and red hats. One child gave no answer the first week and said "Nothing" the second week; and three children, after giving the lady a hat the first week, gave no answer the second week. It looks very much as if there were some factor in the original impression which, so to speak, had more durability than the thought which was the effect of the suggestion, for the children were not *told* they were wrong. To those adults who think these children are lying or are stupid I suggest using the picture with one or two of their grown-up friends. They will, if I mistake not, obtain more than one description of the lady's hat.

Question 7. What was the lady wearing on her feet? 'Boots' or 'shoes' or 'slippers' were all accepted as correct answers; one cannot really tell from the picture which they are; though she is obviously wearing one of the three. But her feet are not clearly visible, and so the next question is about them.

Question 8. Could you see her feet? This is some-

what of the nature of a suggestive question; but as the answer "Yes" is the correct answer and the child *may* have seen them, we shall not include this when we are working out a table of suggestibility.

Question 9. Had she a pinafore or an apron on? This is a similar question to Number 8. It is suggestive, and the suggested answer is the right one. Only one 3-year-old child said "No," and she adhered to it on both occasions.

Question 10. Had she a frock on? This question is similar to Questions 8 and 9. All the 3-year-old children answered correctly. It is a suggestive question; but the suggestion may have awakened and strengthened a fading memory; we cannot be sure that it wholly produced the answer; consequently we accepted 'yes' as correct.

Questions 11, 12, 13, 14, 15. All these are *color* questions; there is nothing in the form of the question to suggest the answer. We ask for the color of the top part of the lady's frock, of her skirt, of her apron or pinafore, of her boots, or shoes, and of her hair. 'Brown' and 'dark brown' were accepted as correct answers about the lady's hair. Of course it was unusual for the child to see a lady wearing a 'red' apron. "The novelty would strike them," I can hear one of my readers exclaim. Well, it did not appear to; both color perceptions and color names with children of this age are very unreliable from an adult point of view. Ena M——'s answers are obsessed by 'green.' This, however, is not the most usual color name for very young children to apply so freely. 'White,' 'black,' 'red' and 'blue' are much more commonly used; though the word

'dark' occurs now and then also. We shall probably find, whatever *emotional* effect colors may have upon children of this age, that, *intellectually,* as identified and named elements, they occupy a very low place. This will very clearly be seen when we study the tables which give the analyzed results for all the 3-year-old children. Let us now turn to questions about the boy.

Question 16. What was the boy doing? Every child has told us that there was a boy in the picture, so that the observation of the presence of the boy might be taken for granted. But what was he doing? A considerable variety in the answer might accompany a correct observation. The 3-year-old children gave such answers as "Had some cake," "Eating his pie," "Eating a piece of pudding," "Eating a cake" (this was said three times), "Eating a pudding," "Eating a piece of bread," "Drinking milk." One child said, at her first interrogatory, that he was reading; and one child gave "Nothing" for her first answer; but both these children gave an acceptable answer a week afterwards. Actions, though there is less tendency with young children to make a spontaneous report about them than to enumerate persons and things, are still among the earlier phases of mental experience which are perceived and named. It is noticeable that only one 3-year-old child said "Sitting down" in answer to this question, and these words were given in addition to an allusion to the boy's eating activities. The selective interest in eating is not, be it said, confined to schools in poor neighborhoods.

Question 17. How was he holding what he had in

his hand? "In his hand" was not accepted as a correct answer to this question; the child was required to show by holding his own hand in a similar position, how the boy was holding the cake. This is a *position* question of great difficulty, and correct answers were very, very rare even among the boys and girls in senior schools. Let anyone who is skeptical as to the difficulty try a few intelligent adults with the question. The interest attaching to it lies just here. It is sometimes said that children notice details very minutely; but details of position must decidedly be excluded from the details which they notice. They do not report them and do not answer correctly when questioned about them.

Question 18. Where were the boy's feet? This is another *position* question. The picture in this case lays a trap for the non-observant, for it is not good family etiquette for little boys in Germany to put their feet on the rungs of chairs, especially when they are, so to speak, officially receiving breakfast. Nor for that matter is it in England. Yet the unusual position of the boy's feet does not impress these children. "On the floor" was the favorite answer: "Under the table" was another. Only one 3-year-old boy was marked for a correct observation. He said "On the big stick under the chair"—a most unusual answer for so young a child. This question, however, unlike the one requiring the position of the boy's hands, was answered very much better by the older boys and girls. We can conceive, with big children, an influence from previous personal objurgation inducing a more perceptive attitude on the matter; but 3-year-old children could not

get *their* legs on the rungs of chairs in that way, even if they tried. The children are not giving us observations; they are falling back on what they know to be customary. But they do not *know* that they are not giving us observations, and that knowledge is just what we want them to have. One boy, much older, said "On his legs;" but he was, I think, evading the question.

Question 19. What clothes was the boy wearing? In consultation with the teachers who were helping me with this experiment, I decided to allow any answer as indicating a correct observation which gave either 'coat,' 'jacket' or 'blouse' with either 'trousers' or 'knickers.' I am aware that 'blouse' and 'coat' may seem far asunder to adult minds; but after careful consideration we decided that they were not thus clearly differentiated in the minds of the little ones. In Ena M——'s first report she alludes to trousers only. Albert M—— said, laconically, "Things" for his first answer, and "Clothes" for his second. One boy said "He was dressed up like a girl." It is doubtful whether this answer was due to the variegated nature of the boy's clothing, for this child had one color name only, and answered "white" to *every* color-question that was given him; but it might have been. One girl said "black clothes." Children who gave him a hat or waistcoat as well as a coat and trousers were not regarded as correct; the mention or omission of shoes and stockings was considered irrelevant.

Questions 20, 21, 22, 23, 24. What color was the boy's coat or jacket; trousers or knickers; boots or shoes; stockings; and hair? There is no difficulty as

to the answers which ought to be given to these questions, except with reference to the boy's hair. The following answers about the color of his hair were accepted as correct: golden; yellow; brown; light brown; ginger. The 3-year-old children did not give all these answers. Ena M——, as we saw when reading the *dossier* relating to her work, said, "green." Other answers were 'black' (three times), 'blue' (twice), 'dark,' 'white' (twice), 'red,' 'yellow.' One could not be convinced that any child had made a correct perception of the boy's hair; but a mark for correct observation was given to the child who said "Yellow."

The remaining color-questions about the boy's clothing, except the one relating to his boots or shoes, are not at all likely to be answered correctly except on the basis of correct observation. Boys, neither in Germany nor England, wear bright-green jackets, bright-red trousers, and blue stockings. The defective color-sense, and still more, the defective color terminology of very young children, would lead us to expect very few correct answers; and the accuracy of the actual answers falls below even that limited expectation. For these young children do not seem to have noticed even the 'red' trousers which we might reasonably have supposed they would have perceived and named. Only one child gave 'red' for the color of the trousers, and only one gave 'green' for the color of the jacket; and both of these answers may quite well have been guesses. The answers were, however, accepted as correct observations. There were five 3-year-old children who said the boy's shoes were black, and adhered to that answer.

In all probability this high percentage of correct answers arose from the children's knowledge that boots were black and not from their recent observation of the picture. Other answers were 'wides,' but in every case color names of some kind were given as answers. His stockings were given as 'black' (twice), 'brown,' 'green,' 'white' (twice), and only three times as 'blue;' and one of these answers of 'blue' comes from a child whose only color name is 'blue;' she answers "blue" to every color question she is asked. It is clear that, if children at this age delight in colored pictures, it is not because they are keen on the identification and discrimination of the colors as adults know them; nor have they acquired what, from our adult standpoint, is a satisfactory color terminology by means of which to express their perceptions.

Question 25. What sort of boots had the boy? This is another question to test suggestibility. The boy was obviously not wearing boots; but young children, even if they notice the distinction between boots and shoes, are ready to accept the implied suggestion that the boy had boots on. One child said "Sunday boots;" one said "A pair of boots;" but the majority gave a color name. None of these children rejected the suggestion. As I have said before, striking differences will be found to occur with older and abler children in answer to questions of this kind.

Question 26. What sort of shoes had the boy? Similar answers were given to those for the preceding question. One girl, however, having told us that the boy's boots were 'dark,' repudiated 'shoes'

altogether, and answered: "He ain't got no shoes, he ain't." This was her first answer; the second week she would not answer at all when the question about the shoes was repeated; though she repeated her first week's answer of "dark" when asked about the boots.

Question 27. Did you see anything under the boy's chair? A reference to the picture will show that there *is* something under the boy's chair—a jug or vase, to wit; and it is a very unusual place for such a thing to be. Four 3-year-old children said "No;" four said "Yes," and two gave no answer. The answer 'Yes' was accepted as correct unless the child went on, as it did in three of these affirmations, to say what it was—wrongly. One said "Yes, a mouse." Another said "Yes, a bat." A third said "Yes, a spoon." These are not 'lies;' the child does not intend to deceive; an associated idea comes to his mind, or rather, arises within his mind, with the same sort of feeling of reality as a remembered perception. I do not assert that children of three cannot lie; that they cannot, with intent to deceive, assert that which is not; but we must not accept a solution of this kind in such cases as these. These are not cases of imagination, unless we are prepared to accept the term 'imagination' for mental products which are purely matters of defective memory. A spoon, a mouse, a cricket bat; what more likely to be under the boy's chair! They have probably been seen under chairs on several occasions. In these answers there has not been even a new synthesis of remembered things, and this at least we should require before dignifying the mental product with the

term 'imagination.' There appears to be a mental stage which is, as it were, a sort of complex which is neither memory, as we know it, nor imagination, as we know it; it is that mental condition from which memory and imagination are differentiated and from which each emerges as such. To throw the child upon his own resources in observation of this kind and to endeavor to secure a self-correction of his errors are some of the means of helping forward this process of mental differentiation. There is no way by which the teacher can do this *for* the child.

Question 28. Did you see a jug or a vase? This question is of the nature of a suggestive question, and the child that succumbs to the suggestion and answers "Yes," without having any memory of having observed the 'jug' or 'vase,' obtains a mark for a correct observation. This does not seem satisfactory; but, having asked the question, I was bound to allow a mark for the affirmative answer; since it was always possible that such an answer *might* arise from the memory (assisted by suggestion) of an actual perception of the thing, and not merely from the suggestive influence of the question. At present it seems to me that such questions should be avoided in subsequent interrogation for *Aussage* purposes. Two 3-year-old children said they had not seen the jug and adhered to this on their second interrogation a week later. Eight of them answered "Yes," both on the first and second occasion on which they were questioned.

Question 29. What color was the jug? Only one child, Ena M——, gave the color correctly, and she used the color name 'green' with a lavishness which

to us adults seems quite reckless—she had probably *not* observed that the jug was green. Other colors given were 'white' and 'blue'—customary colors for English jugs, which green is not. We must not, however, suppose that none of the children saw the jug because they could not remember the color; anyone can obtain satisfactory evidence in a minute or two that children (and adults) can and do observe things whose colors they have neither remembered nor perceived.

Question 30. Was there anything on the floor near the jug, and if so, what was it? This question has reference to the school-boy's satchel which, as has been pointed out previously, was in a form to which English school-children were quite unaccustomed. They did not know what it was, and it is interesting to see that this lack of knowledge probably caused the thing to be passed over and neglected. One 3-year-old said "a sugar-basin" the first week and "nothing" the second week. The first answer is evidently the result of an association between 'jug' and 'basin.' The association does not reappear the second week; the child then answers "nothing." Both answers are wrong; that is, neither receives a mark on our system of marking; but the second answer, from the standpoint of fidelity of report, is obviously a better answer than the first. A second child said "beer" the first week, and gave no answer the second week—another associated error which the interval between the two interrogations appeared to correct. A third child gave no answer on both occasions. A fourth child gave "a man and a bat" the first week and "a boy"

the second week. A fifth child said "a thing" and gave the same answer the second week; this was accepted as a correct observation; it was made by the ablest of this group of 3-year-old children. A sixth child said, "shoes" the first week and "a chair" the second week; both of these were doubtless observed objects, but neither, as children express themselves, could be said to be on the floor as well as near the jug. A seventh child said "nothing" to both interrogations, and ejaculated her answer with decision; she was one of the ablest of the group. Another child answered "nothing" and adhered to that answer the second week.

Question 31. What color was the table? This question appears as if 'shot out of a pistol;' but it must be remembered that, with scarcely an exception, the children had noticed and reported upon the table, and that the interrogatory followed immediately upon their report. 'Yellow,' 'brown,' and 'cream' were accepted as correct answers. As was usual where colors were concerned, the answers of the 3-year-old children were mostly 'wides;' color-names were given in answer to the question, but very rarely correct ones. 'Blue' and 'green' figured as well as 'white;' as indeed, in one instance, did 'red.' In no single case among the 3-year-old children was a mark obtained for a correct answer; though I was sorely tempted to give a mark to a little boy who said "I don't know;" his answer from the standpoint of faithful reporting was probably the best. He knew that he did not know; the others had not advanced as far as that.

Question 32. What else was on the table besides

what the lady was holding? This question suggests that something was there, but does not give a clue to the answer. One boy succumbed to the association aroused and said "Bread and butter and tea." He repeated his answer in exactly the same words a week later. A second gave no answer the first time and said "nothing" the second time. A third child succumbed to an associative error and said "butter" on both occasions. A fourth said "nothing" the first time, and repeated the same answer a week later. A fifth said "cups and saucers" the first time, but answered correctly "a knife" a week later. This may have been due to the working of the suggestive question which followed this one on the first interrogation, namely, "Did you see a knife?" A sixth child gave no answer on either occasion. A seventh said "only a loaf" and repeated the same answer a week later. An eighth gave no answer the first week, but at the second interrogation answered: "a tea-pot." A ninth child answered: "butter" and "dripping" at the first and second interrogations, respectively. And the tenth said "milk" the first week, and added to her answer the second week by saying "milk and sugar."

Question 33. Did you see a knife? This is rather an unsatisfactory question, since an affirmative answer must needs receive a mark as a correct observation; for such an answer *may* have been the result of an actual perception. On the other hand very suggestible children will readily answer "yes." In fact, every one of the ten 3-year-old children answered "yes" to this question, both on their first and second interrogation.

Question 34. Whereabouts on the table was the knife? It might be thought that this question and the next, *What color was it?* would afford us a means of judging whether the answer to Question 33 was a guess due to suggestion or an actual observation; but a moment's reflection will remind us that children most certainly do observe things without noticing their positions or colors, a consideration which prevents us from accepting their answers on these points as a sufficient criterion of the reliability of an affirmative answer to Question 33.

This is another 'position' question, and, as usual with young and mentally undeveloped children, was very badly answered. One said the knife was in the lady's hand and adhered to that answer. Five of them showed a position on the actual table before which they were standing, but their answers, though given with no lack of confidence, were 'wides.' Two children gave no answer or said they did not know. Two only obtained marks for correct observation; one of these said "Against the boy in the picture," and the other said "Just by the side of him." With older children who gave their answers in descriptive words the following answers were accepted as correct: "In the middle of the table near the edge;" "By the edge of the table;" "By the boy;" "Nearly falling off the table."

Question 35. What color was the knife? By this question was meant, What color was the handle of the knife?; but, as the question was badly expressed, it was necessary to allow "white and black," or "black handle," or "black," or "brown," as correct answers. It was not a very serious matter as far

as the 3-year-old children were concerned, for they answered "green," "blue," "black and blue," and, as usual in answer to color questions, confidently ascribed to the object their prevailing color-names. Three children said 'black' and were credited with marks. Their knives at home may have been black-handled; but these observation experiments cannot exclude the influence of previous knowledge; and if this knowledge is sometimes helpful, it is also sometimes misleading.

Question 36. Did you see a flower-pot? This is another rather unsatisfactory question, for a suggestible child can once more score a mark even though it neither saw nor remembered the flower-pot. Of course, we cannot be sure that a child who answered "Yes" may not have seen and remembered the flower-pot; and to some who *had* seen but had forgotten it, the word 'flower-pot' would serve to revive the memory. Every 3-year-old child in this group answered "yes" to this question in both the first and second interrogations.

Question 37. Where was the flower-pot? This was another 'position' question. Only four of the 3-year-old children gave a correct answer at the first interrogatory, though the number was increased to seven at the second interrogatory. "On a box," "On a stool," "On the cupboard," were accepted as correct, whilst with older children "On a trunk" and "On a packing-case" were also accepted. It might be objected that 'stool' is not a legitimate identification of box, but that objection hardly touches the position of the flower-pot in relation to the thing it was standing on. One child who said "On the table"

the first week, and was marked wrong, said "Standing on a thing" the next week, and was marked right. Another child who said "On the floor" the first time, answered correctly the second time, "On a box." One child said "Under the table" on both occasions. Two others said "On the table" on both occasions. Another pointed wrongly to a part of the room in which she was being questioned, but, a week later, answered correctly, "On a box." Older children showed much superiority in answering this question.

Question 38. What color were the flowers? I expected rather a large number of correct answers to this question, even from the 3-year-old children, for 'red' is one of the earliest of children's color-names, and one of the earliest color sensations to be discriminated. But only three of the ten children of this age answered the question correctly. Those who were right gave the same answer on both occasions. Two children gave "white" on both interrogations. Five others gave "blue" and adhered to it a week later. It is hard to believe that there is anything here but sheer guess-work application of the color-names of flowers known to the children, without any present observational factor at all. Four-year-old children are much better, and in no single case of 5-, 6-, or 7-year-old children is there an error. Again there seems an indication that, whatever interest very young children may have in colors, it is not one which leads to correct identification and remembrance.

Question 39. How many flowers were there? This is an extremely hard question for very young children, as, indeed, 'number' questions always are. It is true

that many of the children could have answered correctly if they had been told to *count* how many flowers there were there, but the experiment aims at finding out the spontaneous observations of children, and very few indeed noted definitely the number of the flowers, even though it was a small number, namely, three. There seemed litle growth of this power until 6 years of age, and even at 7 years of age the answers were mostly incorrect. Of the 3-year-old children, four answered "A lot," and adhered to it. One said "Only one flower" the first week, but advanced to "A lot" the second week. Another said "them" (showing *two* fingers), and a week later "them" (showing *four* fingers). Another said "three" the first week and "four" the second week. Another said "three" the first week and "two" the second week; another "one" the first week and "two" a week later. The other answers were correct. In this school there was no advance in accuracy from the first week to the second; there was a slight—a very slight—movement in the opposite direction.

Question 40. What color were the leaves? All but one of the 5-year-old children answered correctly on both interrogations, and most of the 4-year-old children. But only two of the 3-year-old children gave correct answers. The older children *know* that "leaves are green;" the answer, therefore, may not have been the result of a remembered perception, but the distribution of correct answers among the children of various ages is almost identical with that of the correct answers for the colors of the flowers, and flowers are certainly not known to be red.

Among the 3-year-old children it would hardly be safe to conclude that any of them perceived and remembered the color of the leaves, for the application of the color-names possessed by these children might give us 'green' twice as a matter of chance merely. Other color names given by this group were 'blue' (four times), 'red' (twice), 'white' and 'brown.'

Question 41. How many leaves were there? This is another number question, a much more difficult one than that about the number of the flowers. None of these children in this infant school gave a correct answer. It may be said, and said truly, that these children do not want to know the number of the leaves for any purpose whatever, and, therefore, they are not likely to notice it. But every observer of young children must have noticed that they often count and enumerate as a matter of play, that is, as a satisfying occupation for its own sake. However this may be, the numerical interest as such was found to be very small in these children. Answers given by the 3-year-old children were 'one,' 'two,' 'three,' 'four,' 'five' and 'a lot.' 'A lot' was much the predominating answer—a very good answer for these young children; but it was not marked correct, for one of the objects of the experiment was to see how far the spontaneous tendency to correct enumeration was evident in children of various ages. No infant-school child in this or in the other infant school in which the experiment was made gave a correct answer. It might be argued that they *would* have done so, had more time been given for looking at the picture; but we are entitled to infer that they appear to possess very little interest, as compared

with that shown in other things, in the question of exact enumeration.

Question 42. What color was the flower-pot? This question should have been placed with Numbers 36 and 37, which also dealt with the flower-pot. The flower-pot in the picture was a darkish-red, and a few older children answered "brown," an answer which was accepted as correct. The 4-, 5-, and 6-year-old children were almost all correct, but the 3-year-old children gave only two correct answers, those given on the first and second interrogations being, for all these children, precisely the same. Of the 3-year-old children, two said "black;" two said "white;" three said "blue;" one said "green." The two correct answers look like a chance application of well-known color-names.

Question 43. What color was the box or cupboard? The box was painted a light brownish-yellow, so that it was necessary to accept either 'brown' or 'yellow' as an answer to the question, and, with older children, a few answers of 'cream' were accepted as correct. Five-, six-, and seven-year-old children answered very well; but 3-year-old children and 4-year-old children were quite at sea. 'Yellow' and 'brown' are color names which are late in development; 'yellow' especially is a hard word for young children to learn to say. But is there any evidence that they noticed the color of the box at all? The 3-year-old children in this school gave 'dark,' 'blue' (three times), 'white' (twice), 'black' (twice), and 'green;' one child gave no answer. Each child repeated, a week later, the same answer as at the first interrogation.

Question 44. What did you see through the open window? This is a question to test suggestibility. In this form a suggestive question is very difficult to answer correctly, for the implication of the existence of the window is very strong. The word 'open' adds to the difficulty, for there *was* an *open* door in the picture, though there was no window. The child was considered to have resisted the suggestion if the answer were given "There was no window," or "Nothing," or even if the child persisted in giving no answer to the question. No 3-year-old child resisted the suggestion, though more than half of the 4-year-old children did so. The answers of the youngest group are instructive and amusing. One said "a cat" the first time and "a dog" the second time; another said "flowers" on both occasions; a third said "a cat" on both occasions; a fourth said "curtains" twice; a fifth said "blue" the first time and "all blue" the second time (she was not thinking of the appearance through the open door, as I thought at first, for she called that "white" in answer to the next question); a sixth said "a lady" and adhered to that answer; a seventh said "a flower;" an eighth said "a boy" the first week and "a pussy" the second week; a ninth said "nobody," but, in answer to another question, asserted that he *had* seen a window; the tenth child gave no answer, but also asserted that he *had* seen a window. None of these children, therefore, were considered as having resisted the suggestion of the 'window.'

Question 46. Did you see a window? This was another question to test suggestibility. It is in a different form from that of Question 44, and one

that, with older children, would be less likely to mislead; the implication of the existence of the window is certainly not so strong. But little children, and some older ones, are anxious to gain credit for having seen things, even when they may clearly remember that they have not seen them. Yet it is not necessary to adopt an hypothesis of conscious deceit. For, with little ones at least, the suggested idea of a window and a memory idea of a window are not discriminated, as they are with older and more intelligent children. Every 3-year-old child answered in the affirmative.

Question 45. What did you see through the open door? This is another question to test suggestibility; for, though there *was* an open door, there was nothing to be seen through it unless we accept 'the sky,' or 'blue,' or 'white' as correct answers, as well as 'nothing.' Let us accept these answers as indicating a memory of an actual perception, and regard all other answers as indicating a failure to resist the suggestion. Until 6 years of age, the majority of the children failed to answer correctly. The 3-year-old children, as in the case of Question 44, gave both instructive and amusing answers. One said "houses" the first week and "horses and carts" the second week; a second said "a lady" (twice); a third said "a flower-pot" the first week, but gave no answer the second week. There is again an indication here, both in the variation in the answers from the first to the second week—an unusual thing—and in the frequent rejection of an erroneous suggestion the sceond week, after it had been accepted the week before, that there is an element of permanency about

the answers having some recent sensational basis which is lacking to the merely suggested idea. If this turns out to be true, its importance for the science of evidence and the proper time for receiving testimony is considerable. A fourth child said "nobody" and "nothing"; a fifth gave no answer on either interrogation; a sixth said "white" (twice); a seventh said "a knocker" (twice); an eighth said "a daddy"; a ninth said "nothing" the first time and succumbed the second time in answering "flowers"—a reverse operation to the usual process; the tenth said "a windmill" the first week and a week later "a lady." It would be a valuable investigation, if the data were sufficiently extensive for the children of each age, to summarize in classes the kind of associative errors which are made. All the errors of these three-year-old children seem to be easily traceable to previous experience, either of actual things or pictures of them.

Question 47. What color were the walls of the room? The color of the walls, as may be seen by reference to the picture, is a greyish slatey blue; it was necessary, therefore, to accept 'blue,' 'dark-blue,' 'grey,' or 'slate-color' as correct answers. Not, of course, that these 3-year-old children gave either 'grey' or 'slate-color' for any of *their* answers; these refinements of color terminology do not arise, except with older children. Of the 3-year-old children in this school, one said "dark;" two said "black;" three said "blue," two said "white;" one said "green"; and one said "brown." It is very doubtful whether there is much reliability to be placed upon these results as indications of actual

observation and memory of definite color; the *darkness* of the walls may have been perceived and remembered; there is some indication that it has been, but beyond that there is little to be said. All the infant-school children in this school and, to a less extent, those of another school whose results will be given later, show little or no power of observation, or, at least, of description, when dealing with mixed and nondescript colors of this kind.

Question 48. What color was the carpet? This was intended as a *suggestive* question, implying the presence of a carpet. There is no carpet on the floor, and if any child answered "There isn't a carpet," the answer was accepted as correct. But it is doubtful whether children could be expected not to give the color of the floor—a brownish-yellow—as the color of the carpet. On this consideration, the question was classed also among the color-questions. Scarcely any 3- or 4-year-old children in either infant school gave an answer which could be considered correct as to color. 'Yellow' is one of the latest of color-names (I am not speaking now of intermediate colors) to develop, and 'brown' is also late in development; we should therefore expect that a brownish-yellow would fail of identification and description, as, indeed, it appeared to do.

Question 49. *Did you see a carpet?* More than half of the 6 and 7-year-old children in both infant schools resisted the suggestion and said they did not see a carpet; but all the 3-year-old children succumbed, and nearly all those of 4 years of age also.

Question 50. What room was it? To this question there was an unusual number of correct an-

swers. At the first interrogation, five of the ten 3-year-old children gave correct answers and this number increased to 8 at the second interrogation; nearly all the 4-, 5-, 6- and 7-year-old children in both infant schools gave correct answers and adhered to them. The almost invariable answer was "the kitchen;" but a few children who said "a back room" were regarded as having given an answer which, on the basis of their experience, might be regarded as correct.

Self-Correction of Three-Year-Old Children.

Though the procedure for self-correction was carefully gone through with every child, no one of 3 years of age succeeded in getting a single mark under this head.

TABLE I.

SUMMARIZED RESULTS FROM THE WORK OF THREE-YEAR-OLD CHILDREN, SCHOOL A.

Name.	Age Yrs.	Age Mths.	Class in School.	First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Correction.
Elsie A.....	3	5	Grade I*	7	13	12	13	0
Alfred W.....	3	6	Grade I	8	9	12	12	0
Ivy S.....	3	6	Grade I	10	15	12	19	0
Albert M.....	3	7	Grade I	9	14	8	17	0
Rose H.....	3	7	Grade I	7	11	9	14	0
Clara S.....	3	8	Grade I	12	16	16	18	0
Robert H.....	3	8	Grade I	10	17	13	21	0
Ena M.....	3	10	Grade I	6	12	8	14	0
Harry H.....	3	10	Grade I	9	10	10	11	0
Daisy I.....	3	11	Grade I	5	15	9	19	0
Average.....	3	7.8		8.3	13.2	10.9	15.8	0
Mean variation				1.7	2.2	2.1	3.0	
Coefficient of variability....				.20	.17	.19	.18	

*Grade I in London is an infants'-school grading. It consists mostly of 3-year-old and 4-year-old children.

Comments on the Results of Table I.

The first outstanding result is one which was a source of considerable surprise to the highly experienced teachers to whom I lectured in London on this subject in the winter of 1910. Most of the teachers were inclined to the opinion that, after a week's time, the 3-year-old children *would have forgotten all about it,* for they had not seen the picture again, nor had any references been made to it in school in the interval between the first and second reports. But, as will be seen from the table, that was by no means the case. In all cases, except one, the Second Report is better than the First Report, and in every case except one the Second Interrogatory is better than the First Interrogatory. I attribute this result, partly to the direct demand which the work made on the child's own activities—it was not something merely pumped in by the teacher—and partly to the questioning which followed the first report. It was also a source of surprise to the teachers that these children so often repeated on the second occasion, in both their spontaneous reports and in their answers to the questions, the very words they used on the first occasion. A little reflection, however, on the poorness of the vocabulary of such young children made this feature seem reasonable rather than surprising. The incapacity for self-correction seemed general.

II. The Work of the Four-Year-Old Children of School A.

I do not wish unduly to swell this monograph by giving illustrations from the work of individual

children. The tables and summaries of results for the children of different ages and school grades by whom the work was done are doubtless of much more importance both for knowledge and guidance; but without a living basis in the knowledge of individual cases, such summaries have an aspect of vagueness and unreality which teachers dislike, and, I think, rightly so. I propose, therefore, before giving a summary of the work of the 4-year-old children in this school, to give one complete set of reports and answers from the work of the pupils in this group. Phyllis P——, aged 4 years 9 months, one of the best of the 4-year-old pupils, gave her First Spontaneous Report at 3 p. m. on November 25th, 1909.

Phyllis P——'s First Spontaneous Report.

"I saw a lady and I saw a man. She had a basin. The man was drinking something. The man was sitting on a chair. There was a basin underneath the chair and there was something else against it, and there was something in the basin on the table. I think it was porridge. There was some flowers behind the lady and they was in a pot, some roots growing down and a little flower came up. The pot was in a tin saucer. I don't know anything else."

Marking of Phyllis P——'s First Spontaneous Report.

The method of marking this report was, of course, similar to that employed in the case of the work of the 3-year-old children, since, later on, comparisons will be required between the work of children of different ages.

It is obvious that, by virtue of a mere enumeration of persons and things, Phyllis P—— scores 9 or 10 marks. She enumerates 'lady,' 'man' (it is doubtful whether this identification should carry a mark), 'basin' (two separate things, one the hemispherical loaf, the other the jug under the chair), 'chair,' 'something' (the satchel), 'table,' 'flowers,' 'pot,' saucer.'

Two actions are noticed—the man is 'drinking' and 'sitting.' There are several positional references: the man is 'on' the chair; the basin is 'underneath' the chair; something (the satchel) is 'against' the chair; one of the basins (the hemispherical bread) is 'on' the table; the flowers are 'behind' the lady and 'in' a pot; a flower is coming 'up', and the pot is 'in' a saucer.

A mark is given for the qualification 'little' attached to 'flower.'

If this analysis has been made correctly, Phyllis obtains 20 or 21 marks for correct observations.

For the purpose of easy comparison, I shall now present her second report, though it must be remembered that in actuality it followed her first interrogation and was not given until just one week afterwards. It is dated 3 p. m. on December 2nd, 1909.

Phyllis P——'s Second Spontaneous Report.

"There's a lady, she has a basin with some porridge in it. And there's a man. The man has a saucer with a drop of tea in it. He was sitting on a chair. There's a flower with some roses in it. There's a jug underneath the man's chair, and

there's some water in the jug. There is something else on the floor, and it looked like a saucepan. There's a table and there was a knife on the table. The room had green paper round it, and the door was a little wide open. I don't know any more."

Marking of Phyllis P——'s Second Spontaneous Report.

In her second report, Phyllis P—— enumerates 'lady,' 'basin' (the hemispherical loaf), 'man,' saucer (accepted as an identification of what the boy is holding), 'chair,' 'flower' (by which she means plant), 'roses,' 'jug,' 'something else' (the satchel), 'floor,' 'table,' 'knife,' 'room,' 'paper' and 'door' (14 or 15 marks). Two things have dropped out, the flower-pot and its saucer; four things have been added, the room, the paper, the knife and the door. The flower-pot, the room, the knife, and the door were all mentioned in the first interrogatory, but the saucer in which the flower-pot stood was not.

One action is noticed—the man is 'sitting.' Again the positional references are numerous for a child of four years of age The man is 'on' the chair; the roses are 'in' the flower (plant); the jug is 'underneath' the chair; something else (the satchel) is 'on' the floor; the knife is 'on' the table; the room has paper 'round' it; and the door is 'open.'

A mark for 'little wide' is given as a qualification of 'open.' A total of 22 or 23 marks is thus obtained for the second report.

I will now give the first and second set of answers of the same child, each immediately following a report, and the second exactly a week later than the first.

PHYLLIS P——'S FIRST AND SECOND SETS OF ANSWERS GIVEN ON NOVEMBER 25TH AND DECEMBER 2ND, RESPECTIVELY, AT 3.5 P. M.

QUESTIONS.	FIRST SET OF ANSWERS.	SECOND SET OF ANSWERS.
1. Which side of the table was the lady standing?	*This side (showed wrongly).*	*Over there (showed wrongly).*
2. What was she doing?	*She was holding the porridge.*	*She was holding the basin.*
3. How was the lady holding what she had in her hand?	*Like this (showed wrongly).*	*Like that (showed wrongly).*
4. Had the lady anything else in her hand beside the thing you have told me about?	*No.*	*Nothing else in her hand.*
5. What clothes was the lady wearing?	*A skirt and a blouse, some stockings and some shoes and a nighty.*	*A skirt, a blouse, a brooch, some shoes and stockings.*
6. What sort of a hat had she?	*No hat.*	*No hat.*
7. What was she wearing on her feet?	*Black shoes.*	*Black shoes.*
8. Could you see her feet?	*Yes.*	*Yes.*
9. Had she a pinafore or apron on?	*An apron.*	*No, she had an apron on.*
10. Had she a frock on?	*Yes.*	*Yes.*
11. What color was her blouse or the top part of her frock?	*Red.*	*White.*
12. What color was her skirt?	*Black.*	*Black.*
13. What color was her apron or pinafore?	*She's got a white apron.*	*It was a blue apron.*
14. What color were her boots or shoes?	*Black.*	*Black.*
15. What color was her hair?	*Black.*	*Black.*
16. What was the boy doing?	*It's a man. He was drinking something, a drop of tea.*	*It's a man. He was drinking a drop of tea.*
17. How was he holding what he had in his hand?	(*Showed wrongly.*)	(*Showed wrongly.*)
18. Where were the boy's feet?	*On top of one another (crossed her feet on the floor).*	*On the floor.*

Questions.	First Set of Answers.	Second Set of Answers.
19. What clothes was the boy wearing?	*The man was dressed up.*	*The man was dressed up.*
20. What color was the boy's coat or jacket?	*Black.*	*Black.*
21. What color were the boy's trousers or knickers?	*Black.*	*Black.*
22. What color were the boy's boots or shoes?	*Black.*	*Black.*
23. What color were the boy's stockings?	*Black.*	*Black.*
24. What color was his hair?	*Black.*	*Black.*
25. What sort of boots had he?	*They were like black.*	*Black.*
26. What sort of shoes had he?	*He had some slippers.*	*He had boots.*
27. Did you see anything under the boy's chair?	*Yes, a pot.*	*Yes, a jug.*
28. Did you see a jug or vase?	*No, a pot.*	*Yes.*
29. What color was the jug or vase?	*Red.*	*Green.*
30. Did you see anything on the floor near the jug or vase?	*Nothing.*	*Nothing.*
31. What color was the table?	*Black.*	*Brown.*
32. What else was on the table beside the thing the lady was holding?	*Cups and saucers.*	*Only a knife.*
33. Did you see a knife?	*No.*	*Yes.*
34. Whereabouts on the table was it?	*There was no knife.*	*(Showed wrongly.)*
35. What color was the knife?	*No knife.*	*The bottom of it was yellow and the top of it was white.*
36. Did you see a flower-pot?	*Yes.*	*Yes.*
37. Where was it?	*On a tin saucer, and on the floor, and on the box.*	*Standing on the floor.*
38. What color were the flowers?	*Red.*	*Red.*
39. How many flowers were there?	*One.*	*Two.*
40. What color were the leaves?	*Green.*	*Green.*

Questions.	First Set of Answers.	Second Set of Answers.
41. How many leaves were there?	*Two.*	*Two.*
42. What color was the flower-pot?	*Red.*	*Red.*
43. What color was the box?	*It was a tin saucer.*	*Yellow.*
44. What could you see through the open window?	*Nothing.*	*Nothing.*
45. What could you see through the open door?	*The door wasn't open, only the window.*	*The door wasn't open, only the window.*
46. Did you see a window?	*Yes.*	*Yes.*
47. What color were the walls of the room?	*Green.*	*Green.*
48. What color was the carpet?	*Black.*	*Black.*
49. Did you see a carpet?	*Yes.*	*Yes.*
50. What room was it?	*The kitchen room.*	*The kitchen room.*

I suggest that with these questions and answers before him, the reader turns to the discussion on page 23, in which an attempt is made to give a satisfactory basis for marking the answers right or wrong. Then, on the lines indicated in that discussion, I ask him, with the picture by his side, to mark the answers for himself.

Phyllis P—— obviously fails to answer Question 1, succeeds with Question 2, fails with the second positional question, Number 3, successfully resists the suggestion in Number 4, omits the apron or pinafore in Answer Number 5, again resists suggestion in Question 6, gives correct answers to Numbers 7, 8, 9 and 10, fails to answer correctly as to the colors of blouse, skirt and apron (Numbers 11, 12 and 13), probably guesses the answer to Number 14, and is quite wrong about the color of the lady's hair (Number 15). In Answer 16, Phyl-

lis, who has reported 'man,' will not accept the suggestion that it was a 'boy' she saw. She thinks the 'man' is drinking tea from a saucer, and this is accepted as a legitimate identification of the observed activity. Answer 17 is wrong, as it almost invariably is with children of all ages, as is likewise Number 18. Phyllis fails completely with the boy's clothes, though she scores a mark for saying his shoes were black (Questions 19, 20, 21, 22 and 23). She is quite wrong as to the color of his hair (Number 24), and fails to resist the suggestion that he was wearing boots (Number 25). She receives a mark for describing his shoes as slippers in Answer 26 in her first interrogation, but goes back to boots the week after. Marks are given for both weeks' answers to Questions 27 and 28; it was thought that 'pot' was a fair identification of the jar under the boy's chair. Answer 29 was wrong the first week and right the second week. Answer 30 fails to obtain a mark. 'Brown' is accepted as correct for the color of the table, but 'black' is not (Question 31). The answer "cups and saucers," given to Question 32, is an error of association, but a week later the correct answer is given. Similarly, to Question 33, the first answer is wrong, the second one right. The positional question, Number 34, is, as usual, answered badly. Neither of the answers to Question 35 receive a mark; it was not a yellow-handled knife. The first week's answers about the knife are interesting as showing a rejection of suggestion as well as a lack of observation or memory; the second week's answers may have been due to mnemonic revival or may have been a delayed re-

sult of the suggestive questions given the week before, or may have been due to a combination of these factors. Questions about the flower and flower-pot were well answered, but the numbers of the flowers and leaves were wrongly given (Questions 36, 37, 38, 39, 40, 41, 42). Question 43 was evidently misunderstood on the occasion of the first interrogatory, but a satisfactory answer was given the week after. The answer to Question 44 appears to be correct; nothing could be seen through the open window, for there was no window there. In the next answer (Number 45), however, the child shows that she has not wholly resisted the suggestiveness of this question, for she has accepted the implied presence of the window. The answers to Qestions 46, 47, 48 and 49 receive no marks; the answer to Question 50 is obviously correct from the standpoint of an English child.

If this analysis of Phyllis P——'s answers be correct, it will be found that she obtains 19 marks the first week and 23 marks a week later.

Phyllis P——'s Self-Correction.

The self-correction followed immediately after her second interrogation. She said, after she had looked at the picture, *"I didn't see a tin saucer. I did not see any water. The paper was blue. There wasn't any cups and saucers."*

Method of Marking Phyllis P——'s Self-Correction.

In marking the exercises in self-correction, it was necessary to see if the statements made were really corrections of something wrongly stated before, either in answer to the questions or in the reports.

And if there was an insertion of something *left out* in the reports, it was allowed as a correction, provided that the child indicated in some way that she was *aware* that she had left it out.

If Phyllis P——'s self-corrections are marked on this basis, she obtains 4 marks for 4 definite corrections of previous errors.

It will probably be sufficient to enable the reader adequately to conceive the work of these 4-year-old children if I now give the general table of results.

TABLE II.

SUMMARIZED RESULTS FROM THE WORK OF FOUR-YEAR-OLD CHILDREN, SCHOOL A.

Name.	Age—Yrs.	Age—Mths.	Class in School.	First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Correction.
Rose D.....	4	3	Grade IIb*	16	22	19	28	0
Hetty D.....	4	6	Grade IIa	10	30	19	28	1
Frank G.....	4	8	Grade IIb	17	19	19	22	0
Rose C.....	4	9	Grade IIb	12	15	12	15	3
Phyllis P.....	4	9	Grade IIa	20	19	22	23	4
William W.....	4	10	Grade IIa	12	24	22	28	5
Arthur R.....	4	11	Grade IIb	13	23	14	23	0
Arthur B.....	4	11	Grade IIb	14	19	14	20	8
Henry B.....	4	11	Grade IIa	18	23	24	31	6
Charles M.....	4	11	Grade IIa	19	22	29	24	5
Average.....	4	8.9		15.1	21.6	19.4	24.2	3.2
Mean variation				2.9	2.9	3.8	3.6	2.4
Coefficient of variability....				.19	.13	.19	.15	.8

*Grade II in London is an infants'-school grading. It consists mostly of children who will be five or five and a half at the end of the educational year. IIa is the upper and IIb is the lower division.

Comments on Table II.

Like the 3-year-old children, the children of this age do better work in their second report than in their first, and in their second interrogatory than in their first. I offer the same explanations as be-

fore. Self-correction has begun; and, though it is working by no means steadily, several of these children achieve a good record.

III. The Work of the Five-Year-Old Children of School A.

I give one complete set of reports and answers from the work of this group.

George B——, aged 5 years 7 months, who was somewhat above the average of the 5-year-old children, gave his First Spontaneous Report at 2.30 p. m. on November 22nd, 1909.

George B——'s First Spontaneous Report.

"There's a lady with a blue pinafore on, and a boy sitting up at the table eating a piece of cake. There's a jug underneath the chair. She's got a basin in her hand. She's got something in it. She's holding it. The knife is on the table; it fell down out of her hand. The boy's got red trousers and the lady's got a red frock on and brown boots. There's a door open. There's a bag down by the side of the jug, and there's a flower pot."

Marking of George B——'s First Spontaneous Report.

By the enumeration of persons and things, George B—— scores 16 marks. He enumerates 'lady,' 'pinafore,' 'boy,' 'table,' 'piece of cake,' 'jug,' 'chair,' 'basin,' 'hand,' 'knife,' 'trousers,' 'frock,' 'boots,' 'door,' 'bag' and 'flower-pot.'

Three actions are mentioned—the boy is 'sitting' and 'eating,' and the lady is 'holding' something.

There are several references to positions: the boy

is 'up at' the table; the jug is 'underneath' the chair; the knife is 'on' the table; the door is 'open'; and the bag is 'by the side' of the jug. No mark is given for 'in' her hand, it is regarded as equivalent to 'holding,' which has already been marked.

A mark is given for the qualification 'red' which is rightly applied to trousers; other qualifications given, 'red' for frock, and 'brown' for boots, receive no marks, since they are incorrect.

The total of the 'observation' marks for this report is 25.

Then followed the interrogatory, which I will give later; and, precisely one week afterwards, on November 29th, at 2.30 p. m., George B——, gave his Second Report.

George B——'s Second Spontaneous Report.

"There's a lady holding a black basin, and a boy sitting up to the table. The boy's holding a piece of cake. The knife is on the table. The door is open. There's a flower-pot on the stool. There's a jug standing underneath the chair, and there's a bag down by the chair. The lady's got some cake in the basin. She's standing on the floor. She's got a blue pinafore and a red frock. The boy's got red trousers and a jersey on. The boy's got a pair of stockings on, and the mother's got stockings on as well. I can't think of no more."

Marking of George B——'s Second Spontaneous Report.

Marks for enumeration are obtained for 'lady,' 'basin,' 'boy,' 'table,' 'piece of cake,' 'knife,' 'door,' 'flowerpot,' 'stool,' 'jug,' 'chair, 'bag,' 'floor,' 'pina-

fore,' 'frock,' trousers,' 'jersey' and 'pair of stockings,' making a total of 18, an improvement of two over the enumerative marks of the preceding week.

Four actions are noted: the lady is 'holding' and 'standing,' the boy is 'sitting' and 'holding.'

The positional references are more numerous than before. The boy is sitting 'up to' the table; the door is 'open,' the knife is 'on' the table; the flower-pot is 'on' the stool; the jug is 'underneath' the chair; the bag is 'down by' the chair; the lady is standing 'on' the floor. It is not considered worth a positional mark to say, for example, that the trousers are on the boy; though it would have been had the trousers, for example, been 'in' his hands or 'round' his neck, had these statements been correct.

There are also two accurate qualifications. The basin is 'black'; the boy's trousers are 'red.' The other qualifications given are inaccurate.

George B——'s marks for his second report amount to 31, an improvement of six marks over those of the week preceding.

GEORGE B——'S FIRST AND SECOND SETS OF ANSWERS GIVEN ON NOVEMBER 22ND AND NOVEMBER 29TH, RESPECTIVELY, AT 2.35 P. M.

QUESTIONS.	FIRST SET OF ANSWERS.	SECOND SET OF ANSWERS.
1. Which side of the table was the lady standing?	*That side (showed wrongly).*	*That side where the flower-pot was (showed rightly).*
2. What was she doing?	*Cutting some cake.*	*Holding a basin.*
3. How was the lady holding what she had in her hands?	*With her two hands (showed wrongly).*	*With her two hands (showed wrongly).*
4. Had the lady anything else in her hand beside the thing you have told me about?	*No.*	*No.*

Questions.	First Set of Answers.	Second Set of Answers.
5. What clothes was the lady wearing?	*A blue pinafore and red frock.*	*A blue pinafore and a red frock.*
6. What sort of a hat had she?	*A little one.*	*A whitish color.*
7. What was she wearing on her feet?	*Boots.*	*Boots.*
8. Could you see her feet?	*Yes.*	*Yes.*
9. Had she a pinafore or apron on?	*Yes.*	*Yes.*
10. Had she a frock on?	*Yes.*	*Yes.*
11. What color was her blouse or the top part of her frock?	*Red.*	*Red.*
12. What color was her skirt?	*Red.*	*Red.*
13. What color was her apron or pinafore?	*Blue.*	*Blue.*
14. What color were her boots or shoes?	*Brown leather color.*	*Brownish color.*
15. What color was her hair?	*White.*	*Whitish color.*
16. What was the boy doing?	*Sitting on a chair holding a piece of cake.*	*Sitting on a chair holding a piece of cake.*
17. How was he holding it?	(*Showed wrongly.*)	*With his finger and thumb (showed rightly).*
18. Where were the boy's feet?	*Underneath the table.*	*Underneath the table.*
19. What clothes was the boy wearing?	*Red trousers, a jersey, brown stockings and shoes.*	*He put his trousers on first. (What was he wearing?) A jersey and a pair of red trousers. I can't think of any more.*
20. What color was the boy's jersey?	*Brown.*	*Black.*
21. What color were the boy's trousers?	*Red.*	*Red.*
22. What color were the boy's shoes?	*Brown.*	*Brown.*
23. What color were the boy's stockings?	*Black.*	*Black.*
24. What color was his hair?	*Brown.*	*Brown.*
25. What sort of boots had he?	*He had shoes.*	*Brownish color.*
26. What sort of shoes had he?	*Brown.*	*He had boots.*

Questions.	First Set of Answers.	Second Set of Answers.
27. Did you see anything under the boy's chair?	*Yes, a jug.*	*Yes, a jug.*
28. Did you see a jug?	*Yes.*	*Yes.*
29. What color was it?	*A green jug.*	*A blue jug.*
30. Did you see anything on the floor near the jug, and if you did, what was it?	*A bag.*	*A school-bag.*
31. What color was the table?	*Brown.*	*The tablecloth was brown.*
32. What else was on the table beside what the lady was holding?	*The knife.*	*The knife.*
33. Did you see a knife?	*Yes.*	*Yes.*
34. Whereabouts on the table was it?	(*Showed rightly.*)	(*Showed rightly.*)
35. What color was the knife?	*The handle was brown; the other part was white.*	*The handle was brown, and the piece that you cut with was white.*
36. Did you see a flower-pot?	*Yes.*	*Yes.*
37. Where was it?	*On a piece of the high cupboard.*	*On a stool.*
38. What color were the flowers?	*Red.*	*Red.*
39. How many flowers were there?	*Three.*	*Three.*
40. What color were the leaves?	*Green.*	*Green.*
41. How many leaves were there?	*Three.*	*Three.*
42. What color was the flower-pot?	*Brown.*	*A reddish color.*
43. What color was the cupboard?	*It was a yellow cupboard.*	*It was a white stool.*
44. What could you see through the open window?	*Some leaves.*	*Some 'buses.*
45. What could you see through the open door?	*The street.*	*The street.*
46. Did you see a window?	*No.*	*No.*
47. What color were the walls of the room?	*Green.*	*Green.*
48. What color was the carpet?	*Brown.*	*Green.*
49. Did you see a carpet?	*Yes.*	*Yes.*
50. What room was it?	*A little room.*	*The kitchen.*

Marking of George B——'s First and Second Sets of Answers.

George B—— fails to answer Question 1 the first time, but succeeds the week afterwards; succeeds on the second occasion with Question 2, fails as usual with Question 3, successfully resists the suggestion made in Question 4, includes both pinafore and frock in Question 5 (the errors in color are not counted for this question, they appear again later on); fails to resist the suggestion that the lady was wearing a hat, gives correct answers to Numbers 7, 8, 9, 10, fails to name correctly the colors of blouse, skirt and apron, guesses wrongly as to the color of the lady's boots or shoes, and is quite wrong as to the color of the lady's hair. In Answer 16, George is correct on both occasions; and in Answer 17, though wrong the first week, is right the second week, a sequence which happened with his first positional question (Number 1). He fails to answer Question 18 about the position of the boy's feet, though he rightly answered the more difficult positional question, Number 17. Question 19, about the boy's clothes, is answered correctly; but the color questions following are badly answered, with the exception of the one about the boy's trousers; the 'red trousers' appear in all George's reports and answers. 'Brown' is accepted for the color of the boy's hair (Question 24), and the suggestion in Question 25 is resisted the first week, but succumbed to a week afterwards. "He had shoes," said George stoutly, the first week, but equally stoutly, a week later says, "He had boots." Questions 27, 28, 29,

30, 31, 32, 33, 34, 35, 36, 37 were all answered well, though the green jug fades to blue the second week and is then wrongly colored. The questions about the flowers and leaves were well answered, though the leaves were not numbered rightly, as indeed might well be expected. 'Yellow cupboard' is accepted for the answer to Question 43, but 'white stool' is not. George accepts the suggestion that things can be seen through a non-existent window and also through the open door, though he states in Answer 46 that he did not see a window. Answer 47 is wrong. The suggestion about the carpet is not resisted (Questions 48 and 49). 'Little room' is accepted as a correct answer to question 50, though the more usual answer 'kitchen' is given a week later.

George B—— is one of the very few cases among young children who scores less marks for his second set of answers than for his first set; he scores 30 the first week and 29 the week after. He improved in two positional questions, but moved backward in three color-questions, and failed the second week to resist the suggestion that the boy was wearing boots, though he successfully resisted it the week previous. His work is fairly average work for 5-year-old children when considered as a totality of marks for reports and answers, but it is exceptional in falling off a little the second week; and is also exceptionally accurate in the positional answer about the precise way the boy was holding the cake.

George B——'s Self Corrections.

"The boy's jacket was green; I said it was black. There's a door. I didn't see a window. The lady's

apron was red and her blouse was blue and so was her skirt. Here's a bag. There's a lot of green leaves.''

Marking of George B——'s Self-Corrections.

George corrects his erroneous assertion about the color of the boy's jacket. ''I *didn't* see a window'' of course received a mark, and he obtained three more marks for his correction of the colors of the lady's apron, blouse and skirt. Though he was obviously aware that he had given the number of the leaves wrongly, a 'lot' was not held to be definite enough for self-correction.

Thus George's total score for self-correction is 5 marks.

TABLE III.

SUMMARIZED RESULTS FROM THE WORK OF FIVE-YEAR-OLD CHILDREN, SCHOOL A.

Name.	Age Yrs.	Age Mths.	Class in School.*	First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Correction.
Beatrice F.....	5	6	Grade IIIa	22	31	33	31	7
George A.....	5	7	Grade IIIa	20	31	28	34	4
Florence T.....	5	7	Grade IIIb	40	34	45	42	4
George B.....	5	7	Grade IIIb	25	30	31	29	5
Alice J.....	5	7	Grade IIIb	21	23	23	29	3
Gertrude N.....	5	8	Grade IIIa	34	20	35	20	9
Edward M.....	5	8	Grade IIIa	20	22	23	24	3
George P.....	5	10	Grade IIIb	11	22	30	25	1
Thomas P.....	5	11	Grade IIIb	38	25	46	25	3
Barbara H.....	5	11	Grade IIIa	22	24	25	26	5
Average.....	5	8.2		25.3	26.2	31.9	28.5	4.4
Mean variation				7.3	4.4	6.2	4.5	1.7
Coefficient of variability....				.29	.17	.19	.16	.39

*Grade III is an infant-school grading; it consists almost exclusively of children who will be 6 or somewhat older by the end of the educational year. IIIa is the upper division, IIIb is the lower.

Comments on Table III.

A great advance is to be noticed in the spontaneous reports of children of this age, and a steady advance, though much smaller, in their power to answer questions on what they have seen. As in previous years, the second report is better than the first and the second interrogatory is better than the first. Every 5-year-old child is capable of *some* self-corrections and several of them make a considerable number. I have, I think, previously suggested that there is no better means than self-correction of this kind for forcing into prominence the difference between 'reality' and 'fiction,' though by 'fiction' here I do *not* mean merely consciously imagined ideas.

IV. The Work of the Six-Year-Old Children of School A.

Following the procedure previously adopted, I insert one complete set of reports and answers from the work of these 6-year-old children before giving a general table of results for children of this age. On this occasion I shall choose the work of a girl who was one of the oldest and also one of the best of this group. Annie D——, aged 6 years 11 months, gave her first report on Thursday, October 14th, at 2.15 p. m.

Annie D——'s First Spontaneous Report.

"I could see a little boy sitting on a chair, and his mother gave him a piece of bread. The mother had a basin in her hand, and she had a blue apron on. On the floor there was a cushion and a jar, and there was a flower-pot with some flowers in it on a box and there was a door. This door was open a little

bit. There was some oilcloth on the floor. There was a white ceiling. It was brown bread the little boy was eating. It was yellow oilcloth on the floor. There were four legs to the table. The mother was standing. There was a lamp and it was in the daytime. The mother had her hair rolled round at the back.''

Marking of Annie D——'s First Report.

Annie correctly enumerates 17 persons and things: 'boy,' 'chair,' 'mother,' 'piece of bread,' 'basin,' 'hand,' 'apron,' 'floor' 'cushion,' 'jar,' 'flower-pot,' 'flowers,' 'box,' 'door,' 'legs,' 'table' and 'hair.' She mentions three activities: the boy is 'sitting' and 'eating,' the mother is 'standing.' There are a number of references to positions: the boy is 'on' the chair; the basin is 'in' the mother's hand; the cushion and jar are 'on' the floor; the flower is 'in' the flower-pot; the flower-pot is 'on' a box; the yellow (oilcloth) was 'on' the floor; and the mother's hair was rolled round 'at the back:' a total of seven positional references. And there are several adjectival and one or two adverbial qualifications: the door is 'open' and, moreover, it is a 'little bit' open; the boy's bread is 'brown,' and the color on the floor is 'yellow'; the table has 'four' legs; and, a remarkable observation for a child of this age, the mother's hair is 'rolled round' at the back; a total of 6 descriptive qualifications. Annie therefore scores 33 marks for her first report, which is a very high mark for a child 6 years old.

Then followed the first interrogatory, but, for convenience of comparison, I shall insert here the sec-

ond report given a week later, on Thursday, Oct. 21st, at 2.15 p. m.

Annie D——'s Second Spontaneous Report.

"I saw a flower-pot with some flowers in it. It was standing on a box, and there was a white table-cloth on the table; and I saw a little boy and his mother was giving him a piece of bread. The mother had a plait at the front of her head. The door was open a little bit. The little boy had black hair, and his mother had black hair, and she had a blue apron on. The little boy had some black shoes on, and he had black stockings. He had short hair and was just going to eat a piece of bread. He was sitting on a chair. There was a cushion on the floor and a jar. The door was brown. The mother was standing the right side, and the little boy was sitting the left side. The walls were blue."

Marking of Annie D——'s Second Report.

There are 21 correct enumerations of persons and things: 'flower-pot,' 'flowers,' 'box,' 'table,' 'boy,' 'mother,' 'piece of bread,' 'head,' 'door,' 'hair' (the mother's and the boy's), 'basin,' 'hand,' 'apron,' 'shoes,' 'stockings,' 'chair,' 'cushion,' 'floor,' 'jar' and 'walls.'

The activities correctly mentioned are the same as before: the mother is 'standing'; the boy is 'sitting,' and (a slight improvement) is 'just going to eat'

The positional references are the same in number as before: the flowers are 'in' the flower-pot, the pot is 'on' a box; the basin is 'in' the lady's hand; the boy was sitting 'on' a chair; a cushion and a jar

were 'on' the floor; the mother was 'on the right side,' and the boy was 'on the left side.' This gives a total of seven marks for position.

The qualitatively adjectival and adverbial modifications correctly used are as follows: the door is 'open,' 'a little bit;' the boy's shoes are 'black,' and his hair is 'short;' the door is 'brown;' and the walls are 'blue.' In this, as in the first report, there is a reference to the woman's hair; this time it is incorrect.

For the second report as a whole, Annie D—— scores 37 marks, an improvement of 4 marks on the work of the week previous.

ANNIE D——'S FIRST AND SECOND SETS OF ANSWERS GIVEN ON OCTOBER 14TH AND OCTOBER 21ST AT 2.20 P. M.

QUESTIONS.	FIRST SET OF ANSWERS.	SECOND SET OF ANSWERS.
1. Which side of the table was the lady standing?	*The right side.*	*The right side.*
2. What was she doing?	*Giving the boy some bread.*	*Giving the little boy a piece of bread.*
3. How was the lady holding what she had in her hand?	(*Showed wrongly.*)	(*Showed wrongly.*)
4. Had the lady anything else in her hand beside the thing you have told me about?	*No.*	*No.*
5. What clothes was the lady wearing?	*She had a blouse and a blue apron and she had a skirt on.*	*She had a blouse and a blue apron and she had a skirt on.*
6. What sort of a hat had she?	*She had no hat.*	*She had no hat.*
7. What was she wearing on her feet?	*Black boots.*	*They were black boots.*
8. Could you see her feet?	*Yes.*	*Yes.*
9. Had she a pinafore or apron on?	*Yes.*	*Yes.*

Questions.	First Set of Answers.	Second Set of Answers.
10. Had she a frock on?	*Yes.*	*Yes.*
11. What color was her blouse?	*Blue.*	*Blue.*
12. What was the color of her skirt?	*Black.*	*Blue.*
13. What color was her apron?	*Blue.*	*Blue.*
14. What color were her boots or shoes?	*Black.*	*Black.*
15. What color was the lady's hair?	*Black.*	*Black.*
16. What was the boy doing?	*Eating some bread.*	*Eating a piece of bread.*
17. How was he holding it?	*He was holding it sideways (showed wrongly).*	*He was holding it sideways (showed wrongly).*
18. Where were the boy's feet?	*On the floor.*	*On the floor.*
19. What clothes was the boy wearing?	*He had a blouse and some trousers, some boots and some stockings.*	*He had a blouse and some trousers, some shoes and some stockings.*
20. What color was the boy's blouse?	*Black.*	*Black.*
21. What color were the boy's trousers?	*Black.*	*Black.*
22. What color were the boy's boots or shoes?	*Black.*	*Black.*
23. What color were his stockings?	*Black.*	*Black.*
24. What color was his hair?	*Black hair.*	*Black hair.*
25. What sort of boots had he?	*Black boots.*	*Black boots.*
26. What sort of shoes had he?	*He had boots.*	*He had boots.*
27. Did you see anything under the boy's chair?	*No.*	*No.*
28. Did you see a jug?	*Yes.*	*Yes.*
29. What color was it?	*Green.*	*Green.*
30. Did you see anything on the floor near the jug, and, if you did, what was it?	*Yes, a cushion.*	*Yes, a cushion.*
31. What color was the table?	*White.*	*White.*

Questions.	First Set of Answers.	Second Set of Answers.
32. What else was on the table beside what the lady was holding?	*Sugar.*	*A knife.*
33. Did you see a knife?	*Yes.*	*Yes.*
34. Whereabouts on the table was it?	*Left side (showed wrongly).*	*Left side (showed wrongly).*
35. What color was the knife?	*The handle was black and the cut part was brass.*	*The handle was black and the cut part was brass.*
36. Did you see a flower-pot?	*Yes.*	*Yes.*
37. Where was it?	*On a box.*	*On a box.*
38. What color were the flowers?	*Red.*	*Red.*
39. How many flowers were there?	*Three.*	*Four.*
40. What color were the leaves?	*Green.*	*Green.*
41. How many leaves were there?	*Six.*	*Five.*
42. What color was the flower-pot?	*Red.*	*Red.*
43. What color was the box?	*Yellow.*	*Yellow.*
44. What could you see through the open window?	*The street.*	*The street.*
45. What could you see through the open door?	*The street.*	*The street.*
46. Did you see a window?	*No.*	*No, a door.*
47. What color were the walls of the room?	*White.*	*Red, I mean blue.*
48. What color was the carpet?	*The oilcloth was yellow.*	*Blue oilcloth.*
49. Did you see a carpet?	*No.*	*No.*
50. What room was it?	*The kitchen.*	*The kitchen.*

Marking of Annie D——'s First and Second Set of Answers.

Annie D—— starts off well with her first 11 answers nearly all correct, except to Positional Question 3. The color of the lady's skirt is given wrongly the first week, but correctly the week after,

and the answer to Question 14 might very well be a guess. The position question (Number 17) is answered wrongly, as usual; and the position of the boy's feet (Number 18) had evidently not been noticed. Her knowledge of the colors of the boy's garments is obviously very small, and the suggestion that he was wearing boots readily accepted. The jug had evidently been seen, but not accurately placed (Questions 27, 28, 29). The first answer given to Question 32 shows an error due to association, which is corrected the week after; a correction which may be due partly to the influence of Question 33, though it is fairly certain that the knife *had* been seen and remembered. The Number Questions (39 and 41) are, as usual, badly answered; whilst it is interesting to see that, though the implication of a window is accepted in Answer 44, in the less suggestive form of Question 46, the existence of the window is negatived. The answers to Questions 48 and 49 are accepted as negativing the suggestion of a carpet and, on the first occasion, as giving correctly the color of the floor.

The total number of correct observations in the first interrogatory is 31, and in the second is 32. It is interesting to note which of the answers, wrong the first week, are right the second week, and vice versa.

Annie D——'s Self-Corrections.

These, as already explained, followed immediately after the second interrogatory. After looking at the picture, she said:

"*The little boy had a green coat, and he had red*

trousers, and green stockings; and the mother had a red apron, and the jar was green; and there were two irons on the cushion and they were black. There were eight green leaves on the plant and five red flowers, and the mould was black. The little boy had his feet on the strip of the chair. The oilcloth was yellow. The box was yellow, and I could only see half of it. The bread was brown bread. The mother had a little bit of yellow hair and a little bit of black hair, and the little boy had brown hair. The jar had a handle. The mother was looking down."

Marking of Annie D——'s Self-Correction.

Annie seems well aware that her answers to questions about color and number had often been incorrect, for she set to work to correct some of them, though not always successfully. 'Green' for the coat, 'red' for the trousers, 'red' for the apron are really corrections of previous errors; but she had already said that the jar was green. The reference to the two black irons on the 'cushion' was not a correction; and, as there was no indication that she was aware that she had omitted any mention of them before, they were not marked as corrections. The attempted corrections of the number of leaves and flowers were wrong. The position of the boy's feet is now correctly given, but she had already said that the oilcloth was yellow and that the box was yellow. "I could only see half of the box" was accepted as a correction. "The bread was brown bread" was not an amplification, so no mark was given for 'brown.' The corrections as to the color of the boy's hair and the mother's hair are accept-

able; but as we did not know whether the 'handle' of the jar and the mother 'looking down' were not rather part of a fresh report than a correction of the old reports and answers, no marks were allowed for them. Annie's indubitable corrections are 7 in number.

TABLE IV.

SUMMARIZED RESULTS FROM THE WORK OF SIX-YEAR-OLD CHILDREN, SCHOOL A.

Name.	Age		Class in School.*	First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Correction.
	Yrs.	Mths.						
Charles G.....	6	3	Standard Ib	23	27	26	29	7
Gertrude D.....	6	3	Standard Ia	39	39	41	39	7
William B.....	6	3	Standard Ib	31	38	37	38	7
Henry S.....	6	4	Standard Ia	42	29	51	29	7
George G.....	6	6	Standard Ib	25	31	32	31	6
Benjamin E.....	6	7	Standard Ia	22	25	37	27	5
Rose C.....	6	7	Standard Ia	18	27	19	35	8
Violet A.....	6	9	Standard Ib	30	23	24	24	5
Annie D.....	6	11	Standard Ib	33	31	37	32	7
Ellen C.....	6	11	Standard Ia	24	26	55	31	12
Average.....	6	6.4		28.7	29.6	35.9	31.5	7.1
Mean variation				6.3	4.6	8.5	4.0	1.2
Coefficient of variability....				.22	.12	.24	.12	.17

*Standard I is the highest grade in an infants' school; it is really the commencement of the senior-school grading. Ia is the upper and Ib is the lower division.

Comments on Table IV.

There is a steady advance in all respects on the work of the preceding year. Again the second report is better than the first and the second interrogatory is better than the first. Every 6-year-old child is capable of considerable self-correction; it is a function, or group of functions, which now works steadily.

V. The Work of the Seven-Year-Old Children of School A.

I give below one complete set of reports and answers from the work of the 7-year-old children. Olive H——, aged 7 years 2 months, gave her first report on Thursday, April 14th, at 10.10 a. m.

Olive H——'s First Spontaneous Report.

"I can see a lady with a Christmas pudding, and there is a jug underneath the chair. The lady has a blue skirt and a blue blouse and a red apron. The little boy has a green coat and blue trousers. There is a table with a pot with flowers in it. The flowers are red and the leaves are green. It is standing on it. The door is open. The pudding is on the table. She is holding it and resting it on the table. There is a knife on the table."

Marking of Olive H——'s First Report.

There are 18 correct enumerations of persons and things: 'lady,' 'Christmas pudding,' 'little boy,' 'chair,' 'piece' (of pudding), 'jug,' 'skirt,' 'blouse,' 'apron,' 'coat,' 'trousers,' 'pot,' 'flower' (meaning the plant), 'flowers,' 'leaves,' 'door,' 'table,' 'knife.' The 'table' with the pot on it is the box on the right-hand side; 'table' was not accepted as a satisfactory identification.

The boy is 'sitting' and 'eating;' the lady is 'holding' the pudding and 'resting' it on the table: a total of four references to action.

The positional references are 6 in number. The boy is 'in' the chair, and the jug is 'underneath' the chair; the flowers are 'in' the pot, the pot is stand-

ing 'on' it (the table, wrongly identified); the door is 'open'; the pudding is 'on' the table.

There are several correct qualifications. The lady's skirt is 'blue,' her blouse is 'blue,' her apron is red;' the boy's coat is 'green;' the flowers are 'red' and the leaves are 'green:' a total of six marks for correct qualifications.

Olive H—— thus receives a total of 34 marks for her first report.

Then followed the first interrogatory, and, exactly a week later, on April 21st, at 10.10 a. m., Olive gave her second report.

Olive H——'s Second Spontaneous Report.

"I could see a lady in a blue skirt and a blue blouse, and she had a Christmas pudding on the table and she was resting her hand on it. There was a knife on the table and the little boy had a slice of the pudding. He had a green coat and a pair of trousers. The lady had ginger-colored hair. There was a jug under the boy's chair. It had a yellow top to it and he was resting his feet on the rail. He had brown shoes. He was looking at the piece of pudding. The little boy had ginger hair. There was a pot with some red flowers in it and it had some green leaves on it. The door was open. There was a little box what you put coals in down by the side of the boy's chair. The lady was at one side of the table and the little boy at the other. The knife had a yellow handle; it was near the corner of the table. The jug had a yellow handle and there were two little pieces of wood sticking out at the back of the thing what you put the coals in."

Marking of Olive H——'s Second Report.

This is an excellent report for a child of 7 years of age. It is quite obviously fuller and more minute than the report of the preceding week. There are 28 correct enumerations of persons, things, and parts of things. Marks are obtained for 'lady,' 'skirt,' 'blouse,' 'Christmas pudding,' 'table,' 'hand,' 'knife,' 'boy,' 'slice,' 'coat,' 'pair of trousers,' 'hair' (of the lady), 'jug,' 'chair,' 'top' (of the chair), 'feet,' 'rail (of the chair), 'shoes,' 'hair' (of the boy), 'pot,' 'flower,' 'leaves,' 'door,' 'box,' 'handle' (of the knife), 'corner' (of the table), 'handle' (of the jug), and 'pieces of wood' (straps of the satchel).

There are 14 positional references. The pudding is 'on' the table and the lady's hand is 'on' the pudding; the knife is 'on' the table and 'near' the corner; the jug is 'under' the chair; the boy's feet are 'on' the rail; the pot has flowers 'in' it and green leaves 'on' it (the flower); the box is 'down by the side of' the chair; the door is 'open'; the lady is 'one side of' the table, the little boy is 'at the other;' the pieces of wood were 'at the back' (of the satchel), and they were 'sticking out.'

The attributive qualifications correctly mentioned are also numerous. The lady's skirt is 'blue' and her blouse is 'blue;' the boy's coat is green; the lady's hair is 'ginger' colored and the boy's is 'ginger;' the flowers are 'red;' the leaves are 'green;' the box is 'little;' the pieces of wood (straps) are 'two' in number and they are 'little' pieces. This makes a total of 10 qualifications.

The actions mentioned are less in number than usual; the boy is 'looking at' the piece of pudding; the lady is 'resting her hand on' the pudding, and it is doubtful whether the second is not rather a statement of position than of action.

Olive H—— achieves the high total of 56 marks for her second report, an improvement of 22 marks on the work of the previous week.

OLIVE H——'S FIRST AND SECOND SETS OF ANSWERS GIVEN ON APRIL 14TH AND APRIL 22ND AT 10.10 A. M.

QUESTIONS.	FIRST SET OF ANSWERS.	SECOND SET OF ANSWERS.
1. Which side of the table was the lady standing?	*At the corner (showed rightly).*	*This side (showed rightly).*
2. What was she doing?	*I think she was cutting her own-self a bit of pudding.*	*Resting her hand on the pudding.*
3. How was the lady holding what she had in her hand?	*Like that (showed nearly rightly).*	*Like that (showed nearly rightly).*
4. Had the lady anything else in her hand beside what you have told me about?	*No, she was only holding the Christmas pudding.*	*No, she was only holding the Christmas pudding.*
5. What clothes was the lady wearing?	*A red apron, a blue blouse and skirt.*	*A red apron, a blue blouse and skirt.*
6. What sort of a hat had she?	*She hadn't got a hat.*	*She hadn't got a hat.*
7. What was she wearing on her feet?	*I had not looked at them.*	*Brown boots, I think.*
8. Could you see her feet?	*I don't know.*	*I think I could see.*
9. Had she a pinafore or apron on?	*An apron she had on.*	*No, an apron.*
10. Had she a frock on?	*No, she had a blouse and skirt on.*	*No, she had a blouse and skirt on.*
11. What color was her blouse?	*Blue.*	*Blue.*
12. What was the color of her skirt?	*Blue.*	*Blue.*
13. What color was her apron?	*Red.*	*I think it was blue.*

Questions.	First Set of Answers.	Second Set of Answers.
14. What color were her boots or shoes?	*I don't know.*	*Brown, I think.*
15. What color was the lady's hair?	*Ginger.*	*Ginger.*
16. What was the boy doing?	*He was eating a piece of Christmas puddilng.*	*He was eating a piece of Christmas pudding.*
17. How was he holding it?	*Like that (showed nearly rightly).*	*Like that (showed nearly rightly).*
18. Where were the boy's feet?	*Leaning on the rail of the chair.*	*Resting on the rail of the chair.*
19. What clothes was the boy wearing?	*He had a green coat and a blue pair of trousers. He was smiling.*	*He had a green coat and a blue pair of trousers. He was smiling.*
20. What color was his coat?	*Green.*	*Green.*
21. What color were his trousers?	*Blue.*	*Blue.*
22. What color were the boy's boots or shoes?	*Brown shoes.*	*Brown shoes.*
23. What color were his stockings?	*Black.*	*Brown.*
24. What color was his hair?	*Ginger, like the lady's.*	*Red.*
25. What sort of boots had he?	*He had shoes.*	*He had shoes.*
26. What sort of shoes had he?	*Brown shoes.*	*Brown shoes.*
27. Did you see anything under the boy's chair?	*Yes, a jug.*	*Yes, a jug.*
28. Did you see a jug?	*Yes.*	*Yes.*
29. What color was it?	*It had a red rim and a yellow bottom to it.*	*Yellow, and a blue rim nearly at the top.*
30. Did you see anything on the floor near the jug?	*A red thing with two sticks at the back. I don't know what it was. It might have been a box to put coals in.*	*A little box where you put coals.*
31. What color was the table?	*A yellow color.*	*A yellow color.*
32. What was on the table beside what the lady was holding?	*Only a knife.*	*Only a knife.*
33. Did you see a knife?	*Yes.*	*Yes.*

Questions.	First Set of Answers.	Second Set of Answers.
34. Whereabouts on the table was it?	*The knife was laying here, beside the lady where she was standing (showed rightly).*	*The knife was at the side of the lady. I think it was the right-hand side (showed rightly).*
35. What color was the knife?	*It was a lead knife, grey.*	*The handle was yellow and the other part looked as if it was made of grey stuff.*
36. Did you see a flower-pot?	*Yes.*	*Yes.*
37. Where was it?	*Standing on a box.*	*Standing on a box.*
38. What color were the flowers?	*Red.*	*Red.*
39. How many flowers were there?	*Two.*	*Three.*
40. What color were the leaves?	*Green.*	*Green.*
41. How many leaves were there?	*I don't know.*	*I didn't count them.*
42. What color was the flower-pot?	*Red.*	*Red.*
43. What color was the box?	*Yellow.*	*Yellow.*
44. What could you see through the open window?	*It wasn't a window.*	*It wasn't a window.*
45. What could you see through the open door?	*A bit of the garden.*	*A bit of the garden.*
46. Did you see a window?	*No.*	*No.*
47. What color were the walls of the room?	*Yellow.*	*Yellow.*
48. What color was the carpet?	*I think that was yellow.*	*It didn't have a carpet.*
49. Did you see a carpet?	*The floor was yellow. No, it didn't have a carpet.*	*No, it didn't have a carpet.*
50. What room was it?	*I think it was a dining-room.*	*I think it was a dining-room.*

Marking of Olive H——'s First and Second Sets of Answers.

The questions are excellently answered. Olive H—— is one of the best of the children of this group

in the interrogatory work. One of the children is decidedly better, and three of them are approximately equal to Olive. One or two notes with reference to her answers may be found serviceable. She fails on both occasions in the position question (Number 3); she does not exactly know how the lady was holding the loaf; but she is very nearly right. She resists suggestion extremely well, as witness her decided answers to Questions 4 and 6. In answer to Questions 7 and 8, she scores marks the second week, but fails the first week; her failure is, however, nearly, if not quite, as satisfactory as her success. It is interesting to note that, in the course of the week's interval, she has temporarily forgotten the color of the lady's apron (Question 13), but only temporarily, one would suppose, for a minute or so before she has said it was red (Answer 5). The position question 17, like Question 3, is answered wrongly, but again, most unusually, the answer is *nearly* right. The position of the boy's feet has been correctly observed and remembered, but the colors of his trousers and shoes and stockings are invariably given wrongly. Suggestion is resisted as before in Answer 25; and the jug is gratuitously provided with a colored rim, 'red' the first week and 'blue' the second. It was necessary to mark the answer about the knife as correct. I have explained, when discussing the marking of the answers, that this question was badly framed, and this child does seem to have noticed the appearance of the blade, though she is wrong, the second week, as to the handle. She knows she does not know how many leaves there were on the plant (Question 41);

and resists the implication of the window in Question 44. Dining-room is accepted as a satisfactory answer to the last question.

Olive H—— thus receives 37 marks for her first interrogatory and 39 for her second.

After the second interrogatory, the child was again allowed to see the picture and to correct anything which she had given wrongly, as has already been explained.

Olive H——'s Self-Correction.

"The walls were blue and I told you yellow. It was the door that was yellow. The flower had eight leaves on it. The jug hadn't a blue rim round it. The lady had a red apron on. She had black shoes and the little boy had black shoes and black stockings. He had red trousers; I said they were blue, but they're red. The knife had a black handle, it didn't have a yellow one. The pot was red and I said it was yellow. No, I didn't, I said it was red."

Marking of Olive H——'s Self-Correction.

From Olive's self-correction, it seems quite clear that we must turn to her original reports and interrogatories to see just what she did say. She *did* say the walls of the room were yellow,' and 'blue' is an acceptable correction. No statement had been made as to the color of the door, nor was there any indication that the child was aware she had left it out previously, so no mark was given for it; quite obviously, it is offered as an excuse for having gone wrong about the color of the walls. Olive was aware that she had left out the number of the leaves, but, unfortunately for her, there were not eight, but

nine; so that her correction is not itself correct. "The jug had not a blue rim," though she had formerly asserted it to have one; this, therefore, is an admitted correction. The color of the lady's apron is a correction of the answer given in the second interrogatory. The color of the lady's shoes, and the boy's shoes, stockings and trousers are all real corrections of error, as is also the statement as to the color of the handle of the knife. She was quite right about the flower-pot from the first; she had said something was yellow which was not, and the continued consciousness of this confused her a little, in a way which we are indeed fortunate if we have never personally experienced. Eight marks are therefore gained for self-correction.

I will ask the reader to note that Olive H——'s work is distinctly above that of the average 7-year-old child, as will be seen from the following table.

TABLE V.

SUMMARIZED RESULTS FROM THE WORK OF FOUR-YEAR-OLD CHILDREN, SCHOOL A.

Name.	Age		Class in School.*	First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Correction.
	Yrs.	Mths.						
Olive H.....	7	2	Standard Ia	34	37	56	39	8
Isabella W.....	7	3	Standard Ia	40	43	53	42	7
Molly C.....	7	4	Standard Ib	32	38	39	38	3
William T.....	7	5	Standard Ia	39	36	55	38	4
Constance R.....	7	6	Standard Ia	55	37	66	36	4
Annie S.....	7	6	Standard Ib	20	25	23	27	6
John M.....	7	6	Standard Ib	22	27	29	28	11
Eric F.....	7	7	Standard Ia	27	33	49	36	9
Arthur W.....	7	7	Standard Ib	31	30	36	33	4
Frederic G.....	7	7	Standard Ib	23	29	27	28	4
Average.....	7	5.3		32.3	33.5	43.3	34.5	6.0
Mean variation				7.8	4.7	12.4	4.4	2.2

*Standard I is the highest grade in an infants' school; it is really the commencement of the senior-school grading. Ia is the upper and Ib is the lower division.

Comments on Table V.

There is a steady advance shown in all respects, except that of self-correction, beyond the work of the 6-year-old children, though the variability within the group is decidedly high.

Summarized Results of the Work of the Children in School A.

A comparison between the average results of the work of the 3-, 4-, 5-, 6-, and 7-year-old children may most easily be made by reference to the figures of Table VI.

TABLE VI.

SUMMARIZED RESULTS FOR ALL CHILDREN OF SCHOOL A.

Ages.	No. of Children.	Average Age. Yrs.	Mths.	Average Marks for First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Correction.
3—4	10	3	7.8	8.3	13.2	10.9	15.8	0.0
4—5	10	4	8.9	15.1	21.6	19.4	24.2	3.2
5—6	10	5	8.2	25.3	26.3	31.9	28.5	4.4
6—7	10	6	6.4	28.7	29.6	35.9	31.5	7.1
7—8	10	7	5.2	32.3	33.5	43.3	34.5	6.0

Comments on Table VI.

It may be of service if I call attention to a few of the more prominent of the statistical relationships between the numbers given in Table VI.

1. From 3 years to 7 years the marks both for the 1st and 2nd Reports quadruple themselves.

2. From 3 years to 7 years of age the marks for the 1st and 2nd Interrogatories rather more than double themselves.

3. The power of reporting, therefore, grows much more rapidly than the power of observation

in the narrower sense. Whether this difference is a natural one or a nurtural one, or to what extent the difference is natural or environmental cannot be determined with certainty from experiments like these. The school curriculum and method of today certainly favor a development of a linguistic kind rather than one of an observational kind. It is true that experimental work on adults also seems to show comparatively little development in visual perception as compared with progress made in reporting upon percepts. But this of itself may be a result of school training and life work rather than of inadequate natural endowment. For in schools and life it is very important that we should be able to give accounts of what we see and know; it is of less account to most of us that we should see *all* there is to be seen. The living intelligence, quite rightly, is selective; and we must remember that, in cultivating observation—if we can cultivate it—we should consider always, What for? as well as How?

4. The self-corrections do not begin until after the age of three is passed; there is then a steady rise with age and capacity, but a slight fall at the age of seven, which occurs also in the other infants' school in which these experiments were made. This self-correction is, perhaps, the most highly educative aspect of these experiments. The child has to remember what he has already said and compare with what he now sees. It is an excellent means of correcting that pernicious habit of mind, which, under the name of 'imagination' (a term falsely applied psychologically), cannot distinguish what it thinks from what it knows, and cannot separate its

own contributions to, and interpolations between, the facts from the facts themselves. That our most confident statements may be wrong, and wrong, too, on the evidence of our own perceptions, is a most valuable lesson. We are frequently told by others (children are very candid to one another in this respect) that we are quite in error; but that shakes us very little; we know, we think, why other people say so; and, if we cannot find an unworthy motive, we can at least denounce their incompetence: but the method of self-correction here adopted leaves no opportunity for evasions of this kind. Of course, we can deny that the picture is the same as that which we saw before; and, indeed, that is precisely what large numbers of older children actually did, as may appear more fully on pages 154, 219, 220, 221.

5. The general rise from the first to the second interrogatory shows that the demand for the production and reproduction of what was learned by means of the original visual experience has, on the whole, not rendered the memory of it more, but less imperfect; and this is the case, even though many of the questions were suggestive of error and, indeed, frequently produced it; but which aspects of the experience faded and which aspects seemed to grow more stable are questions which must be postponed for the present.

CHAPTER IV.

SECOND SERIES OF EXPERIMENTS. SCHOOL B.

This school is also a municipal school in London. It is situated in a good suburban neighborhood and provides school accommodation for a high type of child, though probably not for quite the highest type of elementary school child. The school staff is a good one and the Mistress had had much experience in experimental work. About one-third of the observations were made by the Mistress and myself jointly; the others were made by the Mistress alone. The school is somewhat smaller than the one in which the observations just described were made, and there is one further feature of difference which calls for notice. There were so few children in this school at that time who were between 3 and 4 years of age that we thought no useful purpose would have been served by an endeavor to obtain representative marks for 3-year-old children of this type, for we had not sufficient material to ensure that our figures would be fairly representative. But careful selections were made of 4-year-old, 5-year-old, 6-year-old, and 7-year-old children in the way which has already been described in the case of the previous school. The precautions adopted in that case to prevent the school-staff from teaching up to the method, and so invalidating (for psychological pur-

poses) the figures obtained, were also adopted in this school. Indeed, the only important differences between this school and the last one are (1) the superior social type of children in attendance and (2) the paucity of 3-year-old children which, as I have said, induced us to leave out the children of this age altogether. We commence, therefore, with the work of the 4-year-old children.

I. The Work of the Four-Year-Old Children of School B.

I will give, as exemplifying the work of the children of this age, the reports, answers and self-corrections of Yola C——, whose marks throughout approximated closely to the average mark for this group. Yola C——, aged 4 years 5 months, gave his first report on Tuesday, January 17, 1911, at 2.30 p. m.

Yola C——'s First Spontaneous Report.

"A little boy—there was the mother there, the flowers standing on something. The door was open. The boy was eating pudding. The door was open and the mother came in, she brought some pudding in—she left it open, she did. There was something on the floor there. There was something under the table. The little boy sat on the chair."

Marking of Yola C——'s First Spontaneous Report.

Yola C——'s first report combines two aspects which may at first appear incompatible; he is cautious about his identifications of things, and he tells us how it was that 'the mother' came to be there. It is not a sign of low intelligence to be cautious in

identifying; and on our system of marking marks will be accredited for 'little boy,' 'mother,' 'flowers,' 'something' (meaning the box), 'door,' 'boy,' 'pudding' (the boy's pudding), 'pudding' (the mother's pudding), 'something' (the boy's satchel), 'floor,' 'something' (the jug), 'table' and 'chair.' A total of 13 marks is thus scored for the enumeration of the persons and things seen in the picture.

The observed actions are two in number; the boy 'was eating,' and 'he sat.'

There are several positional references. The second 'there' was neither emphasized nor accompanied by any indication of locality, so it received no mark; and, of course, the first 'there' is not a specific reference to position. The flowers are 'standing on something' is taken to indicate the position of the plant; though I do not feel wholly certain that, for children of this age, the word 'standing,' even when used about flowers, contains no element of action. The door is 'open.' 'Something' (the satchel) is 'on' the floor. 'Something' (the jug) is stated to be 'under' the table; but, as the jug is actually under the chair, no mark is given for this positional reference. Finally, the boy sat 'on' the chair. There are 'four' marks for position, so that a total of 19 marks is given to Yola's first report.

The second report was given exactly one week later, namely, at 2.30 on January 24, *after* the first interrogatory which followed immediately upon the first report; but it is printed here so that the first and second reports may the more easily be compared.

Yola C——'s Second Spontaneous Report.

"A boy—he was eating pudding. There was a jug under the table. He was sitting on the chair. The door was open. The flower was standing on something else, a box, I think. They were red; they had some red flowers. The mother was standing on the floor. There is a jug. A knife on the table."

Marking of Yola C——'s Second Spontaneous Report.

On this occasion, 12 marks are scored for the enumeration of persons and things: one each for 'boy,' 'pudding,' 'jug,' 'table,' 'chair,' 'door,' 'flower' (meaning the plant), 'box,' 'flowers' (meaning the blooms), 'mother,' 'floor' and 'knife.'

There are three actions noted: the boy was 'eating' and 'sitting,' and the mother was 'standing.'

There are five accurate positional references: the jug is *not* 'under' the table; but the boy is 'on' the chair, the door is 'open,' the flower (plant) is 'standing on' the box, the mother is standing 'on the floor,' and the knife is 'on' the table.

One descriptive adjective is used: "they were *red*—they had some *red* flowers." Thus 21 marks are obtained for Yola's second report, an advance of two units on the work of the previous week.

YOLA C——'S FIRST AND SECOND SETS OF ANSWERS GIVEN ON JANUARY 17TH AND JANUARY 24TH, 1911, AT 2.35 P. M.

QUESTIONS.	FIRST SET OF ANSWERS.	SECOND SET OF ANSWERS.
1. Which side of the table was the lady standing?	*That side (showed rightly).*	*This side (showed wrongly).*
2. What was she doing?	*Standing by him holding a pudding.*	*Giving the boy some pudding.*

Questions.	First Set of Answers.	Second Set of Answers.
3. How was the lady holding what she had in her hand?	*In her hand (showed wrongly).*	*Like that (showed wrongly).*
4. Had the lady anything else in her hand besides what you have told me?	*No.*	*No.*
5. What clothes was the lady wearing?	*She might have blue on.*	*She might have blue on.*
6. What sort of a hat had she?	*I didn't see one.*	*She might have black.*
7. What was she wearing on her feet?	*Shoes.*	*Shoes and stockings.*
8. Could you see her feet?	*No.*	*No.*
9. Had she a pinafore or apron on?	*An apron.*	*No, she had an apron on.*
10. Had she a frock on?	*A blouse on, and a belt round her.*	*She had a blouse on, she had a skirt.*
11. What color was her blouse?	*It might be yellow.*	*It might, might be golden.*
12. What color was her skirt?	*Black.*	*Black.*
13. What color was her apron or pinafore?	*Don't know.*	*Her pinafore? white.*
14. What color were her shoes?	*Black.*	*Black.*
15. What color was her hair?	*Golden.*	*Light.*
16. What was the boy doing?	*Was sitting down on a chair eating pudding.*	*Sitting on a chair; he was eating pudding.*
17. How was he holding it?	*Like that (showed wrongly).*	*Like that (showed wrongly).*
18. Where were the boy's feet?	*Under the table.*	*Under the table.*
19. What clothes was the boy wearing?	*Black trousers and stockings.*	*He had a suit.*
20. What color was the boy's jacket?	*Black.*	*Black.*
21. What color were the boy's trousers?	*Black or red.*	*Black.*
22. What color were the boy's boots or shoes?	*Black.*	*Black.*
23. What color were the boy's stockings?	*They might be black.*	*Black.*
24. What color was his hair?	*Golden brown.*	*Brown.*
25. What sort of boots had he?	*Black boots.*	*Black.*

Questions.	First Set of Answers.	Second Set of Answers.
26. What sort of shoes had he?	*His shoes were in the bedroom.*	*His shoes were in the bedroom.*
27. Did you see anything under the boy's chair?	*No.*	*Yes.*
28. Did you see a jug?	*I never saw a jug; it might be a pot there.*	*Yes.*
29. What color was the jug?	*Brown.*	*Don't know.*
30. Did you see anything on the floor near the jug?	*Yes, it might be a stool there.*	*A stool.*
31. What color was the table?	*Brown.*	*Brown.*
32. What else was on the table besides the pudding?	*Tablecloth.*	*Don't know.*
33. Did you see a knife?	*No, the knife was in the drawer.*	*The knife was on the table.*
34. Whereabouts on the table was it?	*She cut him a piece and then she put the knife on the table.*	(*Showed rightly.*)
35. What color was the knife?	*Black.*	*Brown.*
36. Did you see a flower-pot?	*Yes.*	*Yes.*
37. Where was it?	*Standing on something.*	*On a great, big stool.*
38. What color were the flowers?	*Red.*	*Red.*
39. How many flowers were there?	*Two.*	*Two.*
40. What color were the leaves?	*Brown or black, no green.*	*Green.*
41. How many leaves were there?	*Two.*	*Three.*
42. What color was the flower-pot?	*White.*	*Brown.*
43. What color was the box?	*Black.*	*Black.*
44. What could you see through the open window?	*I couldn't see.*	*The grass.*
45. What could you see through the open door?	*Yes, there might be a jug there.*	*The garden.*
46. Did you see a window?	*No.*	*The window was there.*
47. What color were the	*Brown.*	*White.*

Questions.	First Set of Answers.	Second Set of Answers.
walls of the room?		
48. What color was the carpet?	*The color of the floor.*	*It was golden, bits of black.*
49. Did you see a carpet?	*No.*	*No.*
50. What room was it?	*It might be the kitchen.*	*A kitchen.*

Marking of Yola C——'s First and Second Set of Answers.

The marking of these answers presents little difficulty. The lady rightly placed at the table the first week, is wrongly placed the week after; the answers about the woman's actions are acceptable; the third question, as usual, is wrongly answered, but the suggestion in Question 4 is resisted. Yola was too vague about the woman's dress; and though he refused at first to accept the suggestion of the hat in Question 6, he weakly succumbed the week after, and used his favorite formula "it might be." Let me, *en passant,* say that 'it might be' is a step, and a considerable one, in the differentiation of the child's *general* knowledge from what he sees in a *particular* picture; but it receives no mark, for the child is regarded as having succumbed, though doubtfully, to the suggestion that the woman was wearing a hat. The answers to Questions 7 and 9 were accepted; but as I have said, the boy, generally speaking, is very inaccurate about the lady's dress and he seems scarcely to have remembered anything about the colors of her clothes. In the second answer about the boy's clothes, he is said to be wearing a 'suit.' On the ground that the word 'suit,' with young children, need not mean garments

all of one color or pattern, this answer was accepted. The answers about the colors of the boy's clothes are, like those about the woman's clothing, very inaccurate; but, later on, the references to the jug, the satchel (identified as a stool, *not* the big stool or box on which the plant stands which he refers to in the answer to Question 37), the flower-pot and flowers, and the excellent answer about the color of the carpet given in the second interrogatory show that Yola had not altogether wasted his minute of observation. Twenty-one marks were obtained for his first set of answers and 23 for the second.

Yola C——'s Self-Corrections.

"That's a blue skirt. Her apron's red. The boy had got a green coat and red trousers. A bag not a stool. I can see his shoes there. I can see the table."

Marking of Yola C——'s Self-Corrections.

The boy is obviously aware that several of his answers to color-questions were wrong and he corrects some of them. The skirt is 'blue;' he had said in the interrogatories that it was black (Question 12). "Her apron's red;" he had said that it was white, or that he did not know (Question 13). The boy's coat is 'green' and his trousers are 'red'; he had said they were black, though once there was a glimmering memory of the redness of the trousers. The satchel was a 'bag,' not a stool! The boy's shoes were there, (not in the bedroom (Question 26). "I can see the table" does not appear to contain an element of self-correction, so it receives no mark. There are thus 6 corrections which satisfy the conditions under which marks are given.

TABLE VIa.

SUMMARIZED RESULTS FROM THE WORK OF SEVEN-YEAR-OLD CHILDREN, SCHOOL B.

Name.	Age Yrs.	Age Mths.	Class in School.*	First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Correction.
Ernest M.....	4	3	Grade IIa	22	25	27	33	10
Phyllis S.....	4	5	Grade IIb	15	21	19	22	1
Gladys S.....	4	5	Grade IIb	11	20	10	22	3
Yola C.....	4	5	Grade IIb	19	21	21	23	6
Leonard S.....	4	5	Grade IIb	13	27	19	30	2
Dorothy H.....	4	8	Grade IIa	15	23	22	24	4
Eric M.....	4	8	Grade IIa	21	26	27	28	3
Maud C.....	4	9	Grade IIb	14	24	29	25	5
Jack L.....	4	10	Grade IIa	27	27	42	35	3
Mildred G.....	4	11	Grade IIa	15	21	17	26	9
Average.....	4	6.9		17.2	23.5	23.3	26.8	4.6
Mean variation				4.0	2.3	6.4	3.8	2.3

*Grade II is an infant-school grading. IIa is the upper and IIb is the lower division.

Comments on Table VI.

I suggest that, side by side with this table, the table showing the work of the 4-year-old children in School A be also consulted. There seems little doubt that, in every respect, we are dealing with an abler group of children in School B than in School A. Their average marks are higher both for reports and interrogations, and, what is perhaps even more important as a criterion of ability, they show a much greater proportionate improvement from the first report to the second report and from the first to the second interrogatory—moreover, all of them make successful efforts at self-correction whilst, in School A, there were three children out of the ten selected who gained no marks whatever under this head. The difference between School A and School B 4-year-old children appears to be a little greater

in reporting than in actual observation, in so far as this latter is measured by the answers to the 50 questions of the interrogatory.

II. The Work of the Five-Year-Old Children of School B.

The work of the children of this age will be illustrated by the reports, answers, and self-corrections of Harold N——, aged 5 years 5 months, whose marks are about the average for the children of this age. The work was done at 10.45 a. m. on Tuesdays, July 4 and 11, 1911.

Harold N——'s First Spontaneous Report.

"There is a little boy sitting on a chair eating cake, and there's a table there and a plate on the table. And the mother is there holding a dish, and there's the floor with lines on it, and there's a door where you go into the scullery; it was open. The table had legs with curls in them, what goes in and out like my mother's table. The little boy is just going to put the cake on his plate. The mother is standing up; the mother's got an apron on and she has got her hair done up; she is just waiting for the little boy to finish his cake; she is going to cut a piece more. There is a gas-stove and a plant on it."

Marking of Harold N——'s First Report.

Harold N——'s report is a long one, and contains much continuous narration for a child of his age. He does not distinguish what he has seen in the picture from what he has thought about it, and therefore receives fewer marks than he would if

his efforts were merely efforts in English composition.

For the enumeration of persons and things he obtains 14 marks; one each for 'boy,' 'chair,' 'cake,' 'table,' 'mother,' 'dish,' 'floor,' 'lines,' 'door,' 'legs' (of the table), 'apron,' 'hair,' 'gas-stove' (the box on the right of the picture), and 'plant.'

An unusual number of actions are reported: the boy is 'sitting down,' he is 'eating cake,' he is 'going to put the cake on his plate;' the mother is 'holding a dish,' she is 'standing up,' and she is 'just waiting' for the little boy to finish his cake.

A mark was allowed for the statement that the mother was waiting; it was thought that this might have been an observation from her attitude; but when Harold proceeded to tell us that she is "going to cut a piece more," it was felt that nothing observational justified this remark. Harold thus notes 6 actions.

Accurate positional references are not numerous: the boy sits 'on' the chair; but there is no plate on the table. There are lines 'on' the floor, the door is 'open,' and the plant is 'on' the gas-stove—a total of 4 correct references to position.

There is one adjectival reference which is good and unusual: the mother has got her hair 'done up.' The door is described as one "where you go into the scullery;" I hesitated somewhat about this, since, if the room is a kitchen, the door may well be a scullery door; but as nothing observational indicates a scullery, I thought it fairer to allow no mark.

Harold's first report, therefore, obtains 25 marks. The second was made, as usual, exactly one week later.

Harold N——'s Second Spontaneous Report.

"There was a knife on the table and there was the mother holding a dish. There was a gas-stove, there was a plant on it. It had some red flowers on it, and there was some earth in the pot. The pot was red. The floor had black stripes on. And the mother had a blouse on, and a skirt and a red apron. She had her hair rolled up. And the mother had some shoes on. The little boy had some shoes on. He was eating some cake. There was a jar on the floor. There was a door. It was blue outside. The door was open. The table had legs. The little boy was sitting on the chair."

Marking of Harold N——'s Second Report.

This report makes a great advance in accuracy on the first one; on this occasion every statement counts. The legs of the table no longer curl in and out like mother's table and the door is no longer a scullery door. Nor do we learn this time that the mother is just going to cut some more cake.

There are 24 correct enumerations and three actions are reported. The positional references are numerous and there are several descriptive qualifications. In all Harold N—— scores 40 marks for his second report—four marks above the average for his group.

HAROLD N——'S FIRST AND SECOND SETS OF ANSWERS GIVEN ON TUESDAYS, JULY 4TH AND JULY 11TH AT 10.50 A. M.

QUESTIONS.	FIRST SET OF ANSWERS.	SECOND SET OF ANSWERS.
1. Which side of the table was the lady standing?	*That side* (*showed rightly*).	*That side* (*showed rightly*).

Questions.	First Set of Answers.	Second Set of Answers.
2. What was she doing?	*Holding a dish.*	*Holding a dish.*
3. How was the lady holding what she had in her hand?	*Like this (showed wrongly).*	*Like this (showed wrongly).*
4. Had the lady anything else in her hand besides the dish?	*No.*	*No.*
5. What clothes was the lady wearing?	*An apron and a blouse and a skirt.*	*An apron and a blouse and skirt.*
6. What sort of a hat had she?	*She didn't have one.*	*She hadn't got one at all.*
7. What was she wearing on her feet?	*Shoes.*	*Shoes.*
8. Could you see her feet?	*Yes.*	*Yes.*
9. Had the lady a pinafore or apron on?	*Yes.*	*Yes.*
10. Had the lady a frock on?	*Yes.*	*Yes.*
11. What color was her blouse?	*Yellow.*	*White.*
12. What color was her skirt?	*Black.*	*White.*
13. What color was her apron?	*White.*	*Red.*
14. What color were her shoes?	*Black.*	*Black.*
15. What color was her hair?	*Brown.*	*Brown.*
16. What was the boy doing?	*Eating cake.*	*Eating cake.*
17. How was he holding it?	*(Showed nearly rightly.)*	*(Showed nearly rightly.)*
18. Where were the boy's feet?	*Hanging down.*	*On the floor.*
19. What clothes was the boy wearing?	*A coat, trousers, shoes and stockings.*	*Shoes and socks and a coat and trousers.*
20. What color was the boy's coat?	*Blue.*	*Grey.*
21. What color were his trousers?	*Blue.*	*Grey.*
22. What color were the boy's boots or shoes?	*Black.*	*Black.*
23. What color were his stockings?	*Dark blue.*	*Black.*
24. What color was his hair?	*Brown.*	*Brown.*

Questions.	First Set of Answers.	Second Set of Answers.
25. What sort of boots had he?	*Shoes.*	*Shoes.*
26. What sort of shoes had he?	*Black.*	*Black.*
27. Did you see anything under the boy's chair?	*No.*	*Yes.*
28. Did you see a jug?	*Yes.*	*Yes.*
29. What color was the jug?	*Black.*	*White.*
30. Did you see anything on the floor near the jug?	*No.*	*No.*
31. What color was the table?	*White.*	*Brown.*
32. What else was on the table besides the dish?	*A cloth.*	*A knife.*
33. Did you see a knife?	*Yes.*	*Yes.*
34. Whereabouts on the table was it?	*Just by the little boy (showed rightly).*	*There by the little boy (showed rightly).*
35. What color was the knife?	*White handle, the other silver.*	*Silver, and white handle.*
36. Did you see a flower-pot?	*Yes.*	*Yes.*
37. Where was it?	*On the gas-stove.*	*On the gas-stove.*
38. What color were the flowers?	*Red.*	*Red.*
39. How many flowers were there?	*Four.*	*Four.*
40. What color were the leaves?	*Green.*	*Green.*
41. How many leaves were there?	*A lot.*	*A lot.*
42. What color was the flower-pot?	*Red.*	*Red.*
43. What color was the box?	*Red.*	*Red.*
44. What could you see through the open window?	*Nothing, only a bit of blue.*	*Blue.*
45. What could you see through the open door?	*I didn't see.*	*Blue.*
46. Did you see a window?	*No.*	*No.*
47. What color were the walls of the room?	*I didn't see.*	*Blue.*
48. What color was the carpet?	*Black, the part with the lines on.*	*Grey.*
49. Did you see a carpet?	*Yes.*	*Yes.*
50 What room was it?	*The kitchen.*	*The kitchen.*

Marking of Harold N——'s First and Second Sets of Answers.

There is very little in these answers that calls for special comment or that presents difficulty in marking. This boy, with the exception of the very difficult question as to how the woman was holding the cake (Number 3), had an uninterrupted score of success until he reached the questions on the colors of the woman's dress. His answers to color questions were almost uniformly bad, though he had perhaps noticed the bluish appearance outside the door and he certainly had noticed the black lines on the floor, though he did not know the color of the floor generally. In answer to the question (Number 18) "Where were the boy's feet?" he very obviously made 'shots,' not at random, of course, but in accordance with customary experience. He did not see the satchel (Question 30); he did see the knife, though he had apparently forgotten it for a moment; and he had noticed the flowers of the plant on the box which he calls the gas-stove. The question as to the color of the box had little meaning for him, unless he was thinking of the satchel on the floor, as it is just possible he might have been, though that seems, from the self-correction, to have been very unlikely. I found it difficult not to allow marks for his answers to Question 44; but he has not resisted the suggestion of the window, and so cannot properly be regarded as having answered this question accurately. Twenty-seven marks are obtained for the first interrogatory and 32 for the second.

Harold N——'s Self-Correction.

"I said four flowers and there are only three. The mother had a blue skirt on. A school-bag was on the floor. Green coat; I said 'grey.' His trousers were red. Stockings blue."

Marking of Harold N——'s Self-Correction.

There are 6 definite corrections, as will readily be seen by turning to Harold's reports and answers. He had said that he had seen nothing on the floor, but now finds that there is a school-bag there. Four of the corrections concern color; he simply had not noticed the color before.

TABLE VII.

SUMMARIZED RESULTS FROM THE WORK OF FIVE-YEAR-OLD CHILDREN, SCHOOL B.

Name.	Age Yrs.	Age Mths.	Class in School.*	First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Correction.
Marjory P.....	5	4	Grade IIIa	35	38	39	41	2
Alice W.....	5	4	Grade IIIa	32	33	55	37	9
Harold N.....	5	5	Grade IIIb	25	27	40	32	6
Eileen J.....	5	6	Grade IIIb	42	29	49	31	5
Margaret A.....	5	6	Grade IIIb	42	35	53	40	5
Dorothy S.....	5	6	Grade IIIa	18	24	23	30	5
Frederic M.....	5	6	Grade IIIb	24	30	26	28	7
Charles C.....	5	7	Grade IIIa	18	24	27	27	6
William B.....	5	8	Grade IIIa	23	26	27	28	6
Stacey L.....	5	11	Grade IIIa	19	26	32	26	11
Average.....	5	6.3		27.8	29.2	37.1	32.0	6.2
Mean variation				8.0	3.8	10.2	4.4	1.7

*Grade III is an infant-school grading; it consists mostly of children who will be six or somewhat older at the end of the educational year. IIIa is the upper and IIIb is the lower division.

Comments on Table VII.

A great advance is to be seen in the spontaneous reports of the children of this age, and a steady ad-

vance, though smaller, on their power to answer questions on what they have observed. The second report is much better than the first, and the second interrogatory is decidedly better than the first, though the difference between them is much less. There is also great improvement in the power to make self-corrections.

III. The Work of the Six-Year-Old Children of School B.

The 6-year-old children of this school show great capacity in work of this kind. As an illustrative example, I give the work of Roland V——, aged 6 years 9 months, who did average work for this group, except in his second report, which was much above the average. He gave his reports on Wednesdays, August 31, and September 7, 1910, at 10.30 a. m.

Roland V——'s First Spontaneous Report.

"There is a flower-pot standing on a box and a little boy eating a piece of cake. And there is a mother cutting him a piece with a knife. And he is sitting on a chair, and the door is open. The mother is putting a pot on the table, and she is standing on the floor and the little boy is tasting the cake. The knife is on the table. There is the legs of the chair in the picture and the legs of the table. There is something standing down on the floor with hooks and there is the paper on the wall. There is the sky outside. The little boy has got his boots and stockings on and the mother has got the apron on, and she has got the pot on the table and she is holding it. I can't think of anything else."

Marking of Roland V——'s First Report.

Roland says that he can't think of anything else, but he has certainly remembered a great deal. He scores 20 marks for enumeration of persons and things.

Several actions are correctly noticed; the boy is 'eating' and 'sitting;' the mother is 'putting' the pot on the table; she is 'holding' the pot and 'standing' on the floor. No mark is given for "the little boy is tasting the cake," it is held to be equivalent to eating it, which has already been said. The mother is *not* cutting the cake, though she has probably just done so; the statement is not allowed as an observed activity. The actions correctly noted number five.

Positional references are numerous. The flowerpot is 'standing' and it is 'on' the box; the boy is sitting 'on' a chair, and the door is 'open;' the pot is 'on' the table; the woman is standing 'on' the floor, and the knife is 'on' the table; something (the satchel) is 'standing,' it is 'down on' the floor and the hooks are 'on' it; the paper is 'on' the wall, and the sky is 'outside'; a total of 12. The apron is 'on' the mother, but that is equivalent with these children to the mother has an apron on, so no positional mark is given for it.

Roland scores 37 marks for his first report.

Roland V——'s Second Spontaneous Report.

"There was a little boy with boots and stockings on, and he was tasting a piece of cake. There was a knife on the table and the mother had an apron on

and she had the pot in her hand. The little boy was sitting on a chair, and the door was open and he had laced boots—there were the legs of the chair what he was sitting on. The boy had a coat on and he had dark brown hair. There was the table—it had four legs. The knife had a point to it, and it had a brown handle and the table was flat. The mother was watching him. The door was open. I couldn't see any carpet or any windows, and there was something beside the chair that was flat with two hooks and two legs. There was the floor and no carpet on it. The mother had a bodice on. There was a pot with a geranium in and the pot was on the box. The box was all made of wood and the box was red and so was the flower. The box was yellow. There were nails in it and there was mould for the flower, and there were little branches to the flower. The stalk was green. You could see the sky out of the door and the sky was white and blue. The mother had been cooking and she left the door open and the door was brown and it was all made of wood. There was the handle to the door.''

Marking of Roland V——'s Second Report.

It is really hard to believe that Roland had not again had access to the picture; but since there was probably no other similar picture in London at the time, and this particular picture was carefully kept in the custody of the Head Mistress, it is certain that he had not.

First, awarding marks for the enumeration of

persons and things, he scores for 'boy,' 'stockings,' 'piece of cake,' 'knife,' 'table,' 'mother,' 'apron,' 'pot' (the hemispherical loaf), 'hand,' 'chair,' 'door,' 'legs' (of the chair), 'coat,' 'hair,' 'legs' (of the table), 'knife,' 'point' (of the knife), 'handle' (of the knife), 'something' (the satchel), 'hooks' (the tabs on the satchel), 'legs' (the straps of the satchel), 'floor,' 'bodice,' 'pot' (the flower-pot), 'geranium,' 'box,' 'flower' (of the geranium), 'nails,' 'mould,' 'branches' (of the geranium), 'stalk' (of the geranium), and 'sky;' a total of 32 marks. There was no handle to the door.

Of actions it is noted that the boy 'was tasting' the cake, and 'was sitting' on the chair; and the mother 'was watching' him. It is not regarded as observational to say 'the mother had been cooking.' Actions correctly mentioned on this occasion number three only. Positional references total nine.

But it is in the qualifications which he inserts that Roland makes his great advance; the boy's hair is 'brown;' the legs of the table number 'four;' the handle of the knife is 'brown;' the table 'flat;' the something (satchel) is 'flat;' there are 'two' hooks (the tabs of the satchel); there are 'two' legs (the straps of the satchel); the box was 'made of wood;' the flower-pot is 'red;' the flower is 'red;' the box is 'yellow;' the branches (of the geranium) are 'little;' the sky is 'white' and 'blue;' the door is 'brown' and 'made of wood.' A total of 16 marks is scored for these aspects of his reported observations.

For Roland V——'s second report the high total of 60 marks is scored.

ROLAND V——'S FIRST AND SECOND SETS OF ANSWERS GIVEN ON WEDNESDAYS, AUGUST 31ST AND SEPTEMBER 7TH, IMMEDIATELY AFTER THE CONCLUSION OF HIS REPORTS.

QUESTIONS.	FIRST SET OF ANSWERS.	SECOND SET OF ANSWERS.
1. Which side of the table was the lady standing?	*That side (showed rightly).*	*That side (showed rightly).*
2. What was she doing?	*Cutting the cake for the little boy.*	*She was cutting the boy a piece of cake.*
3. How was the lady holding what she had in her hand?	*With her two hands (showed wrongly).*	*With her two hands like that (showed wrongly).*
4. Had the lady anything else in her hand beside what you have told me about?	*No, the knife was on the table.*	*No.*
5. What clothes was the lady wearing?	*An apron and a dress on.*	*An apron and a dress.*
6. What sort of a hat had she?	*She didn't have any hat.*	*She didn't have a hat.*
7. What was she wearing on her feet?	*Boots and stockings.*	*Boots and stockings.*
8. Could you see her feet?	*Yes.*	*No, I could see the tip of her boot.*
9. Had she a pinafore or apron on?	*Yes.*	*Yes.*
10. Had she a frock on?	*Yes.*	*Yes.*
11. What color was the top part of her dress?	*White.*	*White.*
12. What was the color of her skirt?	*Blue.*	*Black.*
13. What color was her apron?	*Blue.*	*White.*
14. What color were her boots or shoes?	*Black.*	*Black.*
15. What color was the lady's hair?	*Brown.*	*Brown.*
16. What was the boy doing?	*Eating a piece of cake.*	*Eating a piece of cake.*
17. How was he holding it?	*Like this (showed rightly).*	*Like this (showed rightly).*
18. Where were the boy's feet?	*In his stockings.*	*Below the chair.*
19. What clothes was the boy wearing?	*In a coat, and he had his boots on and buttons to his coat.*	*In a coat and stockings and boots.*

Questions.	First Set of Answers.	Second Set of Answers.
20. What color was the boy's coat?	*Brown.*	*Brown.*
21. What color were the boy's trousers?	*Brown.*	*Black.*
22. What color were the boy's boots or shoes?	*Black.*	*Black.*
23. What color were his stockings?	*Brown.*	*Brown.*
24. What color was his hair?	*Light brown.*	*Light brown.*
25. What sort of boots had he?	*Lace boots.*	*Lace up.*
26. What sort of shoes had he?	*Boots he had.*	*Big ones.*
27. Did you see anything under the boy's chair?	*His legs and the legs of the chair.*	*No.*
28. Did you see a jug?	*Yes.*	*I saw something like a jug.*
29. What color was it?	*White, with flowers on.*	*White, with flowers on it.*
30. Did you see anything on the floor near the jug, and if you did, what was it?	*A flat thing with something like two little legs, and there was two hooks.*	*The flat thing with two hooks and two legs.*
31. What color was the table?	*Brown.*	*Brown.*
32. What else was there on the table bgsides what the lady was holding?	*A knife.*	*A knife.*
33. Did you see a knife?	*Yes.*	*Yes.*
34. Whereabouts on the table was it?	*Just there (showed rightly).*	*Just there (showed rightly).*
35. What color was the knife?	*Brown handle, the other was white color.*	*Brown the handle was; the other was white.*
36. Did you see a flower-pot?	*Yes, with mould in the top.*	*Yes.*
37. Where was it?	*On a box, and the flower was a geranium.*	*Yes, in the middle of the box.*
38. What color were the flowers?	*Red.*	*Red.*
39. How many flowers were there?	*Two.*	*About four.*
40. What color were the leaves?	*Green.*	*Green.*
41. How many leaves were there?	*Four.*	*Six.*

Questions.	First Set of Answers.	Second Set of Answers.
42. What color was the flower-pot?	*Red.*	*Red.*
43. What color was the box?	*Yellow.*	*Yellow.*
44. What did you see through the open window?	*Fresh air.*	*I couldn't see any window.*
45. What did you see through the open door?	*The sky.*	*Fresh air and the sky.*
46. Did you see a window?	*No, no window.*	*No.*
47. What color were the walls of the room?	*Shady green.*	*Green.*
48. What color was the carpet?	*I didn't see any carpet.*	*I didn't see any carpet.*
49. Did you see a carpet?	*No.*	*No.*
50. What room was it?	*Not a very big room. I think it was a kitchen.*	*A kitchen.*

Marking of Roland V——'s First and Second Interrogatories.

No difficult case arises throughout these answers, and the correct answers number exactly the same in both interrogatories. The woman's skirt, 'blue' the first week, is 'black' the week after. But the suggestion of a window, half accepted the first week, is decidedly negatived in the second interrogatory. All the remaining answers are identical in meaning from week to week, though this boy varies his phraseology more than most. He is very good at resisting suggestions to error. "No, the knife was on the table" (Number 4); "She didn't have any hat" (Number 6); "I couldn't see any window" (Number 44); but he accepts the suggestion that the boy had boots and makes them 'lace-up boots.' The only considerable weakness in the answers is in those relating to the color of the clothing both of the woman and the boy, and the errors as to the num-

bers of the flowers and leaves. Roland's mark is 34; which is the average mark of the children of this group in the first interrogatory and is just below the average mark for the second interrogatory.

Roland V——'s Self-Correction.

"There is a jug under the chair. I said the stockings were brown but they are blue. His coat is green as well and her frock is blue and so is her bodice. and his trousers are red. The mother's apron is red The boy's hair is not brown, it is red and brown. There are a lot of leaves—nine. There are only three flowers."

Marking of Roland V——'s Self-Correction.

This self-correction is well and clearly done. But Roland had already accepted the jug, though doubtfully, and he could not be marked again for that. A glance at his answers in the interrogatories will show that all the other statements are really corrections. Even the 'red and brown' hair is more accurate than 'brown,' though 'brown' has been allowed as a correct answer. Roland is quite well aware that his number-answers and color-answers were faulty, and puts many of them right. He scores 8 marks for self-correction; the average for the group is 7.0.

Comments on Table VIII.

There is a considerable advance in all respects on the work of the preceding year. In the power of reporting, the advance is very great indeed; and the improvement of the second week's reports upon the first is also very considerable.

TABLE VIII.

SUMMARIZED RESULTS FROM THE WORK OF SIX-YEAR-OLD CHILDREN, SCHOOL B.

Name.	Age Yrs.	Age Mths.	Class in School.*	First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Correction.
Albert W.....	6	1	Standard Ib	35	29	37	28	9
Cyril B.....	6	2	Standard Ia	33	28	47	32	5
Percy H.....	6	2	Standard Ib	37	37	38	36	11
Mabel M.....	6	3	Standard Ib	36	33	43	34	9
Marjorie S.....	6	6	Standard Ia	52	33	58	34	7
Henri M.....	6	6	Standard Ib	49	36	54	42	5
Will H.....	6	9	Standard Ia	47	34	64	34	7
Roland V.....	6	9	Standard Ib	37	34	60	34	8
Freda R.....	6	10	Standard Ia	34	41	48	41	3
Louisa B.....	6	11	Standard Ia	54	34	57	35	6
Average.....	6	5.9		41.4	33.9	50.6	35.0	7.0
Mean variation				7.1	2.5	8.1	2.8	1.8

*Standard I is the highest grade in an infants' school; it is really the commencement of senior-school grading. Ia is the upper and Ib is the lower division.

IV. THE WORK OF THE SEVEN-YEAR-OLD CHILDREN OF SCHOOL B.

I give below, for illustrative purposes, one complete set of reports and answers from the work of the 7-year-old children. I select the work of Winifred S——, aged 7 years 1 month, who gave her reports on Tuesdays, October 4 and 11, 1910, at 10.45 a. m. In this case, the illustration is not really typical of the children of this group, since Winifred's work is much above the average. It must be regarded as of a very high character for children of this age.

Winifred S——'s First Spontaneous Report.

"There is a little boy eating a piece of cake and there is a lady with a big bowl in her hand. There is a flower-pot with some flowers in. There is a

door-way behind the lady. There is a jug down by the table near the little boy. There were some lines on it. The door is open. The little boy is sitting on a chair. He has red stockings. His mother's got a red apron on. There is a big flower-pot. The cake, that the little boy is eating, has got currants in, and the mother is just lifting up the big bowl. There is a red flower with some green and black leaves. The little boy has a blue coat on. He's got black shoes on. And you can see the sky through the door. There is a lot of milk in the big bowl. And the little boy is eating a brown and yellow cake. You can see the sky through the door.''

Marking of Winifred S——'s First Report.

Twenty-one marks are given for enumerating persons and things. 'Door' is twice mentioned towards the end of the report, but, in the sense in which it is used, is equivalent to 'doorway' which has previously received a mark.

The actions noted are as follows: the boy is 'eating' and 'sitting'; the lady is 'lifting up' the bowl.

Positional references are numerous and yield a total of 12 marks.

There is a considerable number of correct qualifications: the bowl is a 'big' one; the lady's apron is 'red;' the flower is 'red;' the boy's shoes are 'black;' there is 'a lot of' milk in the bowl (the so called bowl may perhaps fairly be regarded as full of milk); and the cake the boy is eating is 'brown' and 'yellow;' a total of 9 marks. It was thought that the flower-pot cannot justly be regarded as a 'big' one, so that no mark was given for this qualifi-

cation. One interesting and unusual adverbial modification has not yet been mentioned: the lady is 'just' lifting the bowl. Winifred S—— totals 46 marks for her first report.

Winifred S——'s Second Spontaneous Report.

"There was a knife on the table and there was a little boy eating a cake sitting on a high chair and there was a big jug on the floor and a little stool. There was a lady lifting up a bowl and there was a flower-pot. It had a flower in—it was standing on a box. The flower was red and the leaves were green and black. There was a door and it was open. You could see the sky through the door. And the jug was green. The little boy had red stockings. The sky was blue and white. The little stool was tipped up on one side. The handle of the knife was brown and the lady's hair was brown. She had on a blue skirt and blouse and she had on a red apron. She was just going to turn round. The little boy's cake had got currants in it. The flower-pot was brown. The bowl had milk in. The cake was yellow and brown. The knife was white and brown with a little black round the end. The door was only opened a little way. The floor was brown. The flower-pot was in a little saucer."

Marking of Winifred S——'s Second Report.

Marks for the enumeration of persons and things amount to 27, in which is included 'milk' (evidently the yellowish pink appearance of the top of the loaf) —an improvement of 6 marks on the first report.

Of activities the following are mentioned: the boy

'is eating' and 'sitting,' and the lady is 'lifting up' a bowl. Winifred says also that "she was just going to turn round," but there does not seem any observational evidence for this, so no mark was awarded.

As before, positional references are numerous; in fact, they now warrant 14 marks, an improvement of two upon the earlier record.

But again as before, the excellence of Winifred's report lies in the large number of correct qualifications (mostly colorings) which she gives. A total of 21 marks is awarded for these adjectival and adverbial qualifications—a gain of 13 marks on the first week's record.

Winifred's total mark for her second report is 65, an extremely high mark, higher indeed than that of any other child tested in this, or in the preceding infants' school.

WINIFRED S——'S FIRST AND SECOND SETS OF ANSWERS GIVEN ON TUESDAYS, OCTOBER 4TH AND 11TH, IMMEDIATELY AFTER THE REPORTS.

QUESTIONS.	FIRST SET OF ANSWERS.	SECOND SET OF ANSWERS.
1. Which side of the table was the lady standing?	*On the right side (showed rightly).*	*On the right side (showed rightly).*
2. What was she doing?	*She was just picking up the big bowl.*	*She was lifting up the bowl.*
3. How was the lady holding what she had in her hand?	*Like that (showed wrongly).*	*With her two hands (showed wrongly).*
4. Had the lady anything else in her hand besides what you have told me about?	*No.*	*No.*
5. What clothes was the lady wearing?	*She had a red apron on and a blue blouse and skirt.*	*She had a red apron on and a blue blouse and skirt.*

Questions.	First Set of Answers.	Second Set of Answers.
6. What sort of a hat had she?	*She hadn't got any hat on.*	*She didn't have any hat on.*
7. What was she wearing on her feet?	*I couldn't see.*	*I couldn't see anything on her feet.*
8. Could you see her feet?	*No.*	*No.*
9. Had she a pinafore or apron on?	*Yes, a red one.*	*Yes.*
10. Had she a frock on?	*She had a blue blouse and skirt.*	*No, she had only a blouse and skirt.*
11. What color was the top part of her dress?	*Blue.*	*Blue.*
12. What was the color of her skirt?	*Blue, the same color.*	*Blue.*
13. What color was her apron?	*Red.*	*Red.*
14. What color were her boots or shoes.	*I didn't see the boots.*	*I didn't see any boots.*
15. What color was the lady's hair?	*Brown.*	*Brown.*
16. What was the boy doing?	*Sitting up on the chair with his feet tucked in the rail eating a cake.*	*Eating a cake.*
17. How was he holding it?	*In his two hands (showed wrongly).*	*In his two hands (showed wrongly).*
18. Where were the boy's feet?	*They were tucked inside the rail of the chair.*	*They were tucked inside the rail of the chair.*
19. What clothes was the boy wearing?	*He had a blue coat on, and red trousers and stockings and black shoes.*	*He had a blue jacket on and red trousers, red stockings and black shoes.*
20. What color was the boy's coat?	*Blue.*	*Blue.*
21. What color were his trousers?	*Red.*	*Red.*
22. What color were his boots or shoes?	*Black.*	*Black.*
23. What color were his stockings?	*Red.*	*Red.*
24. What color was his hair?	*Brown.*	*Brown.*
25. What sort of boots had he?	*They were little shoes, pointed ones.*	*They were pointed shoes.*

Questions.	First Set of Answers.	Second Set of Answers.
26. What sort of shoes had he?	*Pointed ones.*	*Pointed shoes.*
27. Did you see anything under the boy's chair?	*The jug was near his chair and the little stool.*	*I saw the jug near.*
28. Did you see a jug?	*Yes.*	*Yes.*
29. What color was it?	*Green with a little black on.*	*Green with some black on.*
30. Did you see anything on the floor near the jug, and if you did, what was it?	*A little stool.*	*I saw a little stool.*
31. What color was the table?	*Brown.*	*Brown.*
32. What else was there on the table besides what the lady was holding?	*I didn't see.*	*A knife.*
33. Did you see a knife?	*Yes.*	*Yes.*
34. Whereabouts on the table was it?	*Just there (showed rightly).*	*Just there (showed rightly).*
35. What color was the knife?	*It had a white blade and a brown handle.*	*It was brown and white with a little black on.*
36. Did you see a flower-pot?	*Yes.*	*Yes.*
37. Where was it?	*It was on a box.*	*It was standing on a box, near the mother.*
38. What color were the flowers?	*Red.*	*Red.*
39. How many flowers were there?	*Four.*	*I don't know.*
40. What color were the leaves?	*Green and black.*	*Black and green.*
41. How many leaves were there?	*Five.*	*A lot of leaves.*
42. What color was the flower-pot?	*Brown.*	*A dark brown.*
43. What color was the box?	*A little bit yellow.*	*White.*
44. What did you see through the open window?	*I didn't see a window.*	*I didn't see a window.*
45. What did you see through the open door?	*I could see the sky.*	*I could see the sky.*
46. Did you see a window?	*No.*	*No.*
47. What color were the walls of the room?	*Brown.*	*Brown.*

Questions.	First Set of Answers.	Second Set of Answers.
48. What color was the carpet?	*The floor was brown. I didn't see a carpet.*	*There wasn't any carpet there.*
49. Did you see a carpet?	*No.*	*No.*
50. What room was it?	*A kitchen.*	*A kitchen.*

Marking of Winifred S——'s First and Second Sets of Answers.

These questions are excellently answered. Winifred S—— is one of the best of the children in this group in interrogatory work. One of the children is somewhat better and one other is equal to Winifred. Little comment is demanded by her answers. She does not know how the lady was holding the 'bowl' (the hemispherical loaf); she does not know how the boy was holding his piece of cake, she does not know how many flowers there were on the plant, nor how many leaves there were; nor was she at all clear as to the woman's feet. But she does know the position of the boy's feet, and the position of the knife on the table; she is unusually successful in resisting suggestions which would have led her astray; she is quite sure the woman had no hat, that there was no window, and that there was no carpet on the floor; and, though her observations and memories of color are not invariably correct, they are extremely good, bearing in mind, as we always must, that one minute's observation has supplied all the information. All the answers of the first week are identical in *meaning,* (though there is more variation of phrase than is usual with young children) with those of the

second week, except two. She did not remember at once that there was a knife on the table; the question "did you see a knife?" probably reinforced the memory of the evanescent perception, for the knife was correctly located immediately after. But in one respect Winifred's answers were less satisfactory the second week, for the color of the box which was correctly asserted the first week to be a "little bit yellow," had faded away to 'white' a week later. Thirty-nine marks were obtained for the first set of answers and the same number for the second.

Winifred S——'s Self-Correction.

"I made a mistake with the color of the box—it is yellow with a little black on. There are three flowers and nine leaves. The floor is yellow. The jug is under the chair. The sky is nearly all white. The chair isn't high. I thought the seat was higher up. His coat is green and his stockings are blue. The bowl had a little red on."

Marking of Winifred S——'s Self-Correction.

Winifred was wrong about the color of the box on the occasion of the second interrogatory only, but the statement is admitted as a correction. The leaves and flowers have now been counted. No question has been asked as to the color of the floor, and brown has already been accepted as a correct statement on the matter. The jug is now rightly placed under the chair, not near the chair as before. In her second report, Winifred had said the sky is blue and white; it is admittedly a correction to say that it is nearly all white. In her second report, she had

said that the chair the boy was using was a 'high' one, but this statement is now corrected; she thought the seat was 'higher up.' The colors of the boy's coat and stockings, wrongly given throughout, are now corrected. The 'bowl' certainly had a little red on, but this statement appears to be rather an amplification than a correction, and there is no indication that it is the insertion of a known omission, so no mark is given for it as a self-correction. Eight marks are obtained for self-correction, the average mark for the group being 7.3.

TABLE IX.

SUMMARIZED RESULTS FROM THE WORK OF SEVEN-YEAR-OLD CHILDREN, SCHOOL B.

Name.	Age—Yrs.	Age—Mths.	Class in School.*	First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Correction.
Winifred S.....	7	1	Standard Ib	46	39	65	39	8
Edwin H.....	7	3	Standard Ib	48	39	55	39	6
Milly B.....	7	4	Standard Ia	23	24	27	27	9
George M.....	7	4	Standard Ib	33	35	52	31	7
May G.....	7	5	Standard Ib	29	37	47	37	6
George L.....	7	6	Standard Ib	43	34	62	31	7
May L.....	7	7	Standard Ia	39	34	43	35	9
George B.....	7	9	Standard Ia	35	41	38	38	6
Winifred F.....	7	11	Standard Ia	49	33	52	35	8
Jack P.....	7	11	Standard Ia	45	36	29	35	7
Average.....	7	6		39.0	35.2	47.0	34.7	7.3
Mean variation				7.2	3.2	10.2	3.0	1.0
Coefficient of variability..				.18	.09	.21	.09	.13

*Standard I is the highest grade of an infants' school; it is really the commencement of the senior-school grading. Ia is the upper and Ib is the lower division.

Comments on Table IX.

Even a cursory glance at the table will show some apparent discrepancies with the results which, by now, the reader will confidently expect.

The self-corrections are slightly less than those of the 6-year-old group; so are the marks for reporting; whilst in the interrogatories, though the 7-year-old group slightly more than hold their own, they do not show the improvement we naturally expect. Within the group itself, there is, as usual, a great improvement shown in reporting, but there is no advance from the first week to the second in the power to answer questions; there is rather a slight decline; no general tendency being shown either way.

Much of this difference is due to Milly B——, who, though 7 years and 4 months old, consistently, except in self-correction, does the work of a rather inferior 5-year-old child; her marks are practically identical with those of her brother, William B——, who worked in the 5-year-old group. Jack P—— also scored a quite exceptionally low mark in his second report, 29 only; whereas he had scored 45 the first time. I cannot account for it; it was certainly not due to forgetfulness, for he answered his second set of questions as well as his first. But even if these marks are omitted, the 7-year-old group quite fails to show the usual improvement over the children of the preceding year. An attempt to explain this may, perhaps, be more profitably made when further data have been collected.

Summarized Results of the Work of the Children of School B.

A comparison between the average results of the work of the 4, 5, 6, and 7-year-old children may most easily be made by means of the following table:

TABLE X.

SUMMARIZED RESULTS FROM THE WORK OF THE CHILDREN OF SCHOOL B.

Ages.	No. of Children.	Average Age. Yrs.	Mths.	Average Marks for First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Correction.
4—5	10	4	6.9	17.2	23.5	23.3	26.8	4.6
5—6	10	5	6.3	27.8	29.2	37.1	32.0	6.2
6—7	10	6	5.9	41.4	33.9	50.6	35.0	7.6
7—8	10	7	6.1	39.0	35.2	47.0	34.7	7.3

Comments on Table X.

I. There is a gradual advance in all the work as the children increase in age and ability; but this advance is not evident in the work of the 7-year-old children of this school as compared with that of the 6-year-old children.

2. Between the ages of 4 and 7, the capacity to report and to make self-corrections appears to be doubled, and the power of accurate observation and memory appears to show an increase of about one-and-a-half times.

3. The power of reporting, therefore, grows much more rapidly than the power of observation in the narrower sense. This conclusion might indeed be quite independently arrived at by noticing the great improvement shown in the reporting from week to week and comparing it with the small improvement shown in the answers to the interrogatories.

4. The self-corrections, as in the preceding school, are few in number at the age of 4 and rise gradually, year by year, showing a slight drop at the age of 7.

5. The general rise from the first to the second interrogatory shows that the demand for the production and reproduction of what was learnt by the original observation has not rendered the memory of it more, but less imperfect. The plant metaphor often used in this connection, namely, that we must not pull up our knowledge to see how it is growing, utterly breaks down: the reproductive process here employed is stimulating and 'fixing' in its nature, the very reverse of what is implied by the analogy of the plant.

Dependence of these results on Social Class.

It will be remembered that two excellent schools had been chosen to do this work—chosen because it was believed that there was no other relevant difference between them than their location. One was situated in a poor neighborhood of the south-west of London, and the other on the same side of London, about three or four miles distant from the first and in a rather good suburban neighborhood. Looking at pictures and talking about them are obviously functions which are singularly open to 'home-training,' or the like of it, so that we must beware lest we draw inferences as to greater natural ability on the part of the children in the good neighborhood which the data of this experiment do not of themselves justify. I say this in the full belief that the difference *is* a natural rather than a nurtural one, though the result is compounded of *both* factors.*

*W. H. Winch, Social Class and Mental Proficiency in Elementary School Children. *Journal of Experimental Pedagogy*, March and November, 1911.

But, whether natural or the effect of nurture, the difference, if there be one, is significant for educational theory. It may be well, however, to establish the fact of difference first.

TABLE XI.

THE WORK OF THE CHILDREN OF SCHOOL A AND SCHOOL B COMPARED, AGE BY AGE.*

	First Report.		First Interrogatory.		Second Report.		Second Interrogatory.		Self-Correction.	
Ages.	A.	B.	A.	B.	A.	B.	A.	B.	A.	B.
3—4...	8.3	....	13.2	....	10.9	....	15.8	....	0.0	....
4—5...	15.1	17.2	21.6	23.5	19.4	23.3	24.2	26.8	3.2	4.6
5—6...	25.3	27.8	26.2	29.2	31.9	37.1	28.5	32.0	4.4	6.2
6—7...	28.7	41.4	29.6	33.9	35.9	50.6	31.5	35.0	7.1	7.0
7—8...	32.3	39.0	33.5	35.2	43.3	47.0	34.5	34.7	6.0	7.3

*It will be remembered that there were not enough three-year-old children in School B to enable us to take a fair sample of this age.

It may also be of interest if I show the average marks of the 40 children from 4 to 7 years of age of School A as compared with those of the 40 children of corresponding ages in School B.

In the First Report the children of School A scored an average mark of 25.3 as compared with 31.4 for School B: for the Second Report the corresponding marks were 32.6 and 39.5: in the First Interrogatory 27.8 and 30.4: in the Second Interrogatory 29.8 and 32.1: and for the Self-Corrections 5.1 and 6.4.

It is quite obvious from the fore-going table that we are in the presence of some common factor which is operating throughout to the advantage of School B; and I have suggested that this result arises from the superior social class of the children attending it; for in length of school life the children of School B are about a year less than in School A. If this be

the case, it seems that our educational organization should take definite count of this difference in ability at a very early age. Schools in poor neighborhoods must have a somewhat lighter, or at least a somewhat different curriculum from the very first years of school life.

CHAPTER V.

THIRD AND FOURTH SERIES OF EXPERIMENTS. SCHOOL C, BOYS AND GIRLS.

The third and fourth series of experiments were carried out in the boys' and girls' departments of a school in the south-west of London in a neighborhood decidedly superior to that of School A, but inferior to that of School B. All the children in the school worked the exercises, but those of the few 7-year-old children were not included, for, at this period of the educational year, then some nine months from its commencement, the 7-year-old children (if any) in senior departments consist of children quite unusually advanced for their age, and no useful purpose would be served by including them; their work would certainly mislead if regarded as typical. But *all the children from eight years of age upwards* are represented in the tables which will follow, so that the dangers arising from unsatisfactory sampling will be entirely obviated.

I. Method of Procedure in the Senior Schools.

Some important differences in the present procedure should at once be mentioned, before indicating the elements of method common to both the in-

fants' and senior schools First of all, the children in the senior schools *wrote their answers themselves;* whilst the answers of the younger children *had been written down for them.* Secondly, whilst the children of 7 years and under were dealt with, one by one, by the experimenter, the senior children were taken in classes or groups, the larger classes being divided for the purpose of the experiment. It is quite true that, for persons unaccustomed to deal with large numbers of children, there is much risk in a procedure which does not allow the personal observation of the experimenter to each child separately; but in 'good' schools there is so little danger arising from children's inattention, especially to an interesting matter of relative novelty, that the results are often more regular than those in which each child works separately under the immediate supervision of the experimenter.

An important subsidiary difference arose from the employment of the child's own writing. It would have been quite impossible for the younger of the senior children to have written both reports and answers consecutively, so that the actual experiments covered a slightly longer time than those in the Infant Schools.

A second important difference arose from the mass method of procedure. The small original picture could no longer be used. It was much enlarged so as to be visible to a whole class or group of children at the same time.

Further details of procedure which, as will be seen, were largely identical in both infants' and senior schools, now follow.

1. The picture was so arranged that it could be instantaneously exposed or covered. Before it was shown to the children they were told that they were going to be shown a picture for a minute, and that immediately afterwards they were to write down all that they could remember of what they had seen in the picture. All their papers were prepared beforehand, so that no part of the time allotted to the experimental work should be occupied by anything irrelevant. After the picture was covered each child began to write, and made a First Spontaneous Report; no time limit was imposed for this exercise.

2. On the next day at the same time of day, fresh papers having been prepared, the experimenter said to the children: "You remember the picture I showed you yesterday; I want you to answer some questions I am going to ask you about it. Begin each answer on a fresh line." The questions were then called out slowly, one by one, and the answers were written one by one.

3. Exactly one week after the First Report, on the same day of the week, and at the same hour of the day, fresh papers having been previously prepared, the children were required to make a Second Report, not, of course, being made aware beforehand that any second report was to be required of them. The experimenter said to the children: "You remember the picture I showed you last week; I want you to write down all that you remember to have seen in the picture." No time limit was imposed for this exercise.

4. On the next day, exactly one week after the questions had been answered for the first time, the

experimenter said to the children, "I want you to answer the questions about the picture again. Begin each answer on a separate line." Then, as before, the questions were called out one by one, and the answers were written down, one by one.

5. When the questions had been answered in writing for the second time, the worked papers were collected and fresh ones supplied. The experimenter then said: "I am going to show you the picture again, and I want each of you to remember anything he (or she) has written down wrongly before, or omitted, and also to write down what he (or she) ought to have said." No time limit was imposed for the exercise, and the corrections were made whilst the picture was exposed to view.

6. It was impossible so to arrange that every class or group should take the exercises at the same time of day, but the times chosen were all good times of the day pedagogically, and no exercises were taken on Mondays, a day of low adaptation to mental work. Also great care was exercised in order that no lesson preceding the tests should involve fatigue in writing or practice in observation. And during the period of the experiment no lessons were given in English Composition, oral or written, nor any exercises in unaided observation.

There were, therefore, five written papers for every child in the school, both boys and girls—a First Report, a First Interrogatory, a Second Report, a Second Interrogatory and a Self-Correction. Each child's papers were enclosed within one cover, so that easy references might be made from one test to another worked by the same child.

II. How the Work in Boys' and Girls' Schools May be Compared.

Before attempting to summarize the results and compare them with those of the younger children, and before drawing attention to the comparative powers of boys and girls in work of this kind, I shall give an example from each class or standard. The results will subsequently be given in standard-groups and likewise in age-groups. Age in senior schools is not so useful a determinant in school grading as it is in infant schools. For within any one school, the *standard** gradings, provided they are made properly on a basis of general ability, are much more satisfactory than age gradings. But if one school is to be compared with another (these two departments, boys' and girls', are really separate schools in England) the standard gradings may well be dropped or made subordinate, and groups of corresponding ages substituted. In this case, comparing the work of boys with that of girls, the factor of social class may be ruled out; for the boys and girls belong to the same families, live in the same neighborhood, and attend the same school. Both boys' and girls' departments are of good pedagogical efficiency. In the work of the infants' schools previously given, I refrained from making comparisons between the work of the boys and the work of the girls; the risk due to sampling was, in my judgment, too great to allow of conclusions of high probability; but no such risk attaches to the present investigation.

*The term 'standard' is here used in the English sense, the equivalent of a school grade in America.—Editor.

But there is a factor which may produce variation apart from the differing natural abilities of the boys and girls, namely, the differing sex of the teachers; for the boys are taught by men, the girls by women. And it is well to have the relevant possibilities in mind before commencing the study of the detailed results of the work.

The instances given will be chosen from work typical of each standard, and will consist of the work of children who are at what is considered in England to be about the normative age for the given standard or grade.

III. The Work of the Standard II Boys and Girls.

The illustrative work first given is that of Jessie D——, in Standard II, aged 8 years 3 months. The reports and answers are printed exactly as written, with all errors, orthographical and otherwise.

Jessie D——'s First Report.

"In the picture that we was looking at was a little boy on a chair eatting a slice of cake. On the table there is a knife the mother is standing by the right side of the table with a bowl between her hands. Beside the boys chair there is a green pot on the other side were the mother is standing ther is a brown flower pot with a lot of green leaves. The mother has a white lace bonit and a blue aprin with white spots. The boy looks nice and kind, and the mother looks nice and kind. They both look as if they both live happily to gether, and do not quorrel with one an other. The boy looks thin and the

mother looks fat. I cannot tell you anything about the father because he is not their.''

Marking of Jessie D——'s First Report.

Esthetic and moral terms figure in this report, and Jessie provides the lady with a bonnet and an appropriately colored apron. Marks are given for the enumeration of 'little boy,' 'chair,' 'slice of cake,' 'table,' 'knife,' 'mother,' 'bowl,' 'hands,' 'pot,' 'flower-pot,' 'leaves,' 'apron;' a total of 12 marks.

The boy is 'eating' and the mother is 'standing.' The positional references are as follow: the boy is 'on' the chair; a knife is 'on' the table; the mother is standing 'by the right' of the table and the bowl is 'between' her hands; the pot is 'beside' the chair; the flower pot is 'on the other side,' the side 'where the mother is standing;' a total of 7.

The descriptive qualifications are as follow: the pot is 'green;' the flower-pot is 'brown;' the leaves are 'green' and there are 'a lot' of them; the boy is 'nice and kind;' the mother is 'nice and kind;' the mother looks 'fat;' the boy looks 'thin;' and they appear to live 'happily;' a total of 11 marks.

Jessie D——thus scores a total of 32 marks for her first report.

Jessie D——'s Second Report.

''In the picture that we were looking at was a lady on the right-hand side of the table with a bowl in her two hands. On a box beside the lady was a brown flower-pot. It didn't have any flowers but it had some green leaves. On the other side of the table was a little boy sitting on a chair. Beside the

boy's chair there is a green pot. On the table there is a knife. The mother has a black scourt [skirt] a blue aprin with white spots she has a lace bonit. The boy is eating a slice of cake. The door was wide open and the window was shut. The boy had a brown jacket and a brown coat and a brown waistcoat. And the boy is opening his mouth wide. The colour of the bowl is brown the colour of the bowl inside is a kind of yellowish white. The kind of cake that the boy is [eating] is yellow with currants. The cealing is paited blue. The knife has a yellow handle, the side in which you have to cut with is made of solid? silver. The lady has brown slipers. The boy has heavy lace up boots. The lady has grey hair and the little boy has brown hair. I cannot tell you anything about the mother and the little boy father, because he is not there."

Marking of Jessie D——'s Second Report.

The influence of the preceding week's questioning seems obvious, but rather in the direction of inducing the child to make statements of some kind than in improving the accuracy; though, as the answers to the second set of questions will show, some advance in accuracy has been made. The esthetic and moral judgments have disappeared, but there is more enumeration and descriptive qualifications of things than before. Of enumerations we have 23. Three actions are included: the boy is 'sitting' and 'eating' and 'opening his mouth.' Of positional references there are 10.

The descriptive qualifications are as follow: the flower-pot is 'brown;' the leaves are 'green;' the pot

(jug) is 'green;' the bowl (the hemispherical loaf) is 'brown,' and the inside of it is 'yellowish white;' the cutting part of the knife is 'silver' (it is hard to believe that the question stop after the word 'solid' in Jessie's report has its usual signification); and the boy has 'brown' hair; a total of 7 marks.

For the second report, therefore, 43 marks are obtained, showing an improvement on the first report beyond the average for the children of this class.

JESSIE D——'S FIRST AND SECOND SETS OF ANSWERS.

QUESTIONS.	FIRST SET OF ANSWERS.	SECOND SET OF ANSWERS.
1. Which side of the table was the lady standing?	*right side.*	*The right side.*
2. What was she doing?	*Standing.*	*holding a bowl.*
3. How was she holding what she had in her hand?	*With her hands.*	*with her two hands.*
4. Had the lady anything else in her hands?	*No.*	*No.*
5. What clothes was the lady wearing?	*A aprin.*	*scuort, a brouce, a aprin, a bonit.*
6. What sort of a hat had she?	*a lace bonit.*	*a lace bonit.*
7. What was she wearing on her feet?	*she had shoes.*	*slippers on her feet.*
8. Could you see them?	*No.*	*I could not.*
9. Had she a pinafore or apron on?	*Yes.*	*Yes.*
10. Had she a frock on?	*Yes.*	*Yes.*
11. What color was her blouse or the top part of her frock?	*red, white spots.*	*blue.*
12. What color was her skirt?	*black.*	*black skirt.*
13. What color was her apron or pinafore?	*blue white spots.*	*blue white spots Aprin.*
14. What color were her boots or shoes?	*black.*	*shoes black.*
15. What color was her hair?	*brown.*	*gray hair.*

16. What was the boy doing?	*eating a slice of cake.*	*eating a slice of cake.*
17. How was he holding what he had in his hand?	*with two hands.*	*with two hands.*
18. Where were the boy's feet?	*by the legs of the table.*	*below the chair.*
19. What clothes was the boy wearing?	*in a suet and trousers.*	*gaket boots trousers waistcoat.*
20. What color was the boy's coat or jacket?	*brown.*	*brown jacket.*
21. What color were the boy's trousers or knickerbockers?	*brown trousers.*	*brown trousers.*
22. What color were the boy's boots or shoes?	*black boots.*	*black boots.*
23. What color were the boy's stockings?	*black stockings.*	*black stockings.*
24. What color was his hair?	*brown hair.*	*black hair.*
25. What sort of boots had the boy?	*lace up boots.*	*heavy boots.*
26. What sort of shoes had the boy?	*know shoes.*	*no shoes.*
27. Did you see anything under the boy's chair?	*No.*	*Yes.*
28. Did you see a jug or vase?	*Yes.*	*Yes.*
29. What color was the jug or vase?	*a green jug.*	*green jug.*
30. Did you see anything on the floor near the jug or vase, and if you did, what was it?	*No.*	*No.*
31. What color was the table?	*a brown table.*	*brown table.*
32. What else was there on the table beside the thing the lady was holding?	*nothing else.*	*a knife.*
33. Did you see a knife?	*Yes.*	*Yes.*
34. Whereabouts on the table was it?	*by the boy.*	*by the boy.*
35. What color was the knife?	*yellow handle.*	*yellow.*
36. Did you see a flowerpot?	*Yes.*	*Yes.*
37. Where was it?	*on a box.*	*on a box.*

38. What color were the flowers?	*green flower.*	*no flowers.*
39. How many flowers were there?	*a nober* [*number*].	*I do not no.*
40. What color were the leaves?	*green leaves.*	*green leaves .*
41. How many leaves were there?	*six leaves.*	6 *leaves.*
42. What color was the flower-pot?	*brown flower-pot.*	*brown pot.*
43. What color was the box?	*yellow box.*	*yellow box.*
44. What did you see through the open window?	*nothing.*	*nothing.*
45. What did you see through the open door?	*nothing.*	*nothing.*
46. Did you see a window?	*Yes.*	*Yes.*
47. What color were the walls of the room?	*I do not know.*	*red walls.*
48. What color was the carpet?	*I do not know.*	*I do not know.*
49. Did you see a carpet?	*Yes.*	*Yes.*
50. What room was it?	*Kitchen room.*	*Kitchen.*

Marking of Jessie D——'s First and Second Sets of Answers.

Very little comment is needed, but one general observation must be made. The answers to two of the position questions, the first one referring to the way in which the lady was holding the loaf and the second one to the way the boy was holding his piece of bread, were almost invariably wrong; and the question arose whether this was due to the difficulty of writing down an intelligible and accurate answer. To test this point, a large sample was taken from several classes, and the children were questioned separately one by one. In one or two (!) cases only did the child know the answers, though even then unable apparently to express them in writing. The marks for the first set of answers total 25, and for

the second set of answers 26. If these are average marks, as they are, for girls of this age, it is quite obvious that for the observation of such a picture as the one given, which we may call a domestic interior, the 8-year-old child is no further forward than 5-year-old children—indeed, is less forward. But, of course, there are two conditions of the method which render exact comparison impossible; the older children *had to write their answers* and they wrote them *on the day following their report and not immediately after it,* whereas the younger children had their answers *written for them* and gave their first set of answers *immediately after their first report.* I emphasize once more these differences in conditions because they would usually be supposed to make a considerable difference to the accuracy of the answers. Personally, I think their influence is slight. Children often remember more the day, or several days, *after* an experience (if they have given much attention to it) than they do immediately after the actual experience; and the rate at which the questions were asked and the answers written gave little opportunity for manual fatigue, though there is necessarily some dispersal of attention caused by the writing process. Fatigue due to writing is much more likely to operate in the reports; but in the capacity to report, the 8-year-old children are found superior to the 5-year-old children, and, indeed, superior in their first report to the 7-year-old children of School A. I briefly discuss these possibilities at this juncture because anyone who reads Jessie D——'s work, even hurriedly, will be struck by the absence of that improvement

with age which the preceding illustrations, as well as the tabulated figures previously given, will by now have led him to expect. Some of Jessie's answers call for special comment. The knife came in more decidedly the second week, but she had apparently noticed it the first week, unless placing it by the boy was a 'lucky shot.' She did not know the color of the handle, but by this time no reader will suppose that a thing has not been seen because its color is not remembered, and of course the knife is more likely to be *by the lady,* for it is she who cuts the cake, though the boy is 'eating' it. The color of the bodice was rightly given the second week, though wrongly the week before; but the color of the hair, which was given as 'brown' both for the woman and the boy at the first interrogation, became 'black' for the boy and 'gray' for the woman the week after. Colors, badly observed, appear to be insecurely remembered, which is precisely what we should expect on general psychological principles. The woman's clothes were more accurately given the second week than the first—an improvement which may have been due to the suggestive influence of the questions of the first interrogatory.

Jessie D——'s Self Correction.

"I said the flower-pot was brown and it is red. I said there was not any flowers and there is three. I said the lady's hair was grey and it is brown."

Marking of Jessie D——'s Self-Correction.

Though 'brown' has been allowed as a correct description of the color of the flower-pot, 'red' is accepted as a self-correction. The remaining correc-

tions are three in number; one as to the existence of the flowers, one as to their number—a correction of omission, and one as to the color of the woman's hair which was wrongly classed in the second interrogatory, though rightly given the week before. Jessie obtains 4 marks for self-correction, slightly less than the 5-year-old average for School A.

TABLE XII.

SCORES OF THE STANDARD II CHILDREN, BOTH SEXES, SCHOOL C.

	Average Age. Yrs.	Mths.		First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Correction.
34 Girls	8	10.9	Aver. Mark.....	32.4	24.3	34.5	25.3	5.0
			Mean Variation.....	7.7	2.8	7.0	3.8	1.8
			Coefficient of Variability..	.24	.12	.20	.15	.36
49 Boys	8	11.3	Aver. Mark.....	24.2	24.8	24.6	25.4	3.9
			Mean Variation.....	7.0	5.0	7.2	5.0	1.8
			Coefficient of Variability..	.29	.20	.29	.20	.46

Comments on Table XII.

Though the boys in Standard II are older than the girls, there is little doubt that the girls show greater superiority in reporting and self-correction, whilst in their capacity to answer questions on what they had seen, the average marks of boys and girls are practically identical, though amongst the boys this capacity is much more variable. Where the average marks are so nearly alike it will be necessary to compare by age-groupings rather than by standard-groupings, and this will be done later compendiously in a single table; but it may be said at once that, at this age, the linguistic development of the girls seems superior to that of the boys, though there is practically no difference in their powers of observation as measured by the capacity shown in their interrogatories.

IV. The Work of the Standard III Boys and Girls.

I give one complete set of papers, choosing on this occasion, the work of a boy; after which, the average marks of the boys and girls will be given in a comparative table as before. The work selected for illustrative purposes is that of John S——, aged 9 years 4 months.

John S——'s First Spontaneous Report.

"A little boy is sitting on a chair near a table, and his mother is giving him some food. Under the table their is a vase. The door is open and by it there is a box and on the box is a flower-pot with a plant in it. On the table is a knife. The house is made of wood. The lady is rather tall. On the floor is the little boy's books with something binding it."

Marking of John S——'s First Report.

It is quite obviously better work than the average work of the Standard II boys, and is given in notably concise form, which is rather characteristic of boys than of girls; but its brevity is accompanied by distinct poverty of material, and its conciseness is jerky. It looks as if John had very little to say and not that he was choosing wisely from an abundance of material. The report is weak in every respect. For enumeration of persons and things John receives 14 marks. The only action correctly noted is that the boy is 'sitting.' The positional references carry 7 marks. There are a few qualifications: the lady is 'tall;' and 'rather' yields an additional modifica-

tion; and something is 'binding' the books; a mark is also given for the material qualification 'made of wood.' In all John obtains 26 marks.

John S——'s Second Spontaneous Report.

"A boy was sitting on a chair near a table, and his mother was giving him some bread. Under the table was a vase, and on the flour [floor] was a book. The door was open and by it was a box, and on the box was a flower-pot with a plant in it. The window was open. The lady was wearing a blouse, an apron, and a skirt. On the table was a knife. The lady was going to cut some bread, and the boy was eating a piece of bread and butter. The vase was a green one. The plant in the flower-pot on the box had several leaves on it. The boy had his feet on one of the rails of the chair. The boy was wearing a pair of shoes."

Marking of John S——'s Second Report.

It is obvious that the questions have influenced many of the statements, and that there is a considerable improvement on the work of the previous week; but also noticeable is the exact repetition of some of the sentences of the first report.

Marks for enumeration total 19.

The boy was 'sitting' and 'eating' bread. That the mother was 'giving him bread,' or 'just going to cut bread' were not regarded as observed activities. Of course, strictly speaking, no activity in a motionless picture can be other than an inferred activity, but the inferences in these cases were considered too far away from their observational basis.

The positional references are 10 in number.

There is only one correct qualification: the vase is rightly described as 'green.' Hence, 32 marks are obtained for John's second report—an improvement of 6 on his previous week's report.

JOHN S——'S FIRST AND SECOND SETS OF ANSWERS.

QUESTIONS.	FIRST SET OF ANSWERS.	SECOND SET OF ANSWERS.
1. Which side of the table was the lady standing?	*The right side.*	*On the right side.*
2. What was she doing?	*She was giving the boy some food.*	*Cutting a piece of bread.*
3. How was she holding what she had in her hand?	*She was holding it between her hands.*	*Between her hands.*
4. Had the lady anything in her hands besides the thing you have told me about?	*No.*	*No.*
5. What clothes was the lady wearing?	*An apron and a blouse and a skirt.*	*A pinafore, a skirt, and a blouse.*
6. What sort of a hat had she?	*I don't no.*	*I don't no.*
7. What was she wearing on her feet?	*A pair of shoes.*	*I don't no.*
8. Could you see her feet?	*Yes.*	*No.*
9. Had she a pinafore or an apron on?	*A apron.*	*An apron.*
10. Had she a frock on?	*Yes.*	*Yes.*
11. What color was her blouse or the top part of her frock?	*I don't no.*	*I don't no.*
12. What color was her skirt?	*Her skirt was black.*	*Blue.*
13. What color was her apron or pinafore?	*White.*	*White.*
14. What color was her boots or shoes?	*I don't no.*	*I don't no.*
15. What color was her hair?	*Black.*	*Black.*
16. What was the boy doing?	*Eating a piece of bread and butter.*	*Eating a piece of bread.*

Questions.	First Set of Answers.	Second Set of Answers.
17. He had something in his hand; how was he holding it?	*Between two fingers.*	*Between a finger and a thumb (showed wrongly when asked).*
18. Where were the boy's feet?	*On one of the rails of the chair.*	*On the rail of the chair.*
19. What clothes was the boy wearing?	*Trowers, boots, coat and waste-coat.*	*A wastcoat, a pair of trowsers and a coat.*
20. What color was the boy's coat or jacket?	*Grey.*	*Black.*
21. What color were the boy's trousers or knickers?	*Grey.*	*Black.*
22. What color were the boy's boots or shoes?	*Black.*	*Black.*
23. What color were the boy's stockings?	*Black stockings.*	*Black.*
24. What color was his hair?	*I don't no.*	*I don't no.*
25. What sort of boots had the boy?	*I don't no.*	*I don't no.*
26. What sort of shoes had he?	*I don't no.*	*I don't no.*
27. Did you see anything under the boy's chair?	*A vase, yes.*	*Yes.*
28. Did you see a jug or vase?	*A vase.*	*Yes, a vase.*
29. What color was the jug or vase?	*Green.*	*A green vase.*
30. Did you see anything on the floor near the jug or vase, and if you did, what was it?	*Yes.*	*Yes.*
31. What color was the table?	*white.*	*I don't no.*
32. What else was there on the table beside the thing the lady was holding?	*A knife.*	*A knife.*
33. Did you see a knife?	*Yes.*	*Yes.*
34. Whereabouts on the table was it?	*At the edge.*	*On the edge.*
35. What color was the knife?	*Black.*	*Black.*
36. Did you see a flower-pot?	*Yes.*	*Yes.*

Questions.	First Set of Answers.	Second Set of Answers.
37. Where was the flower-pot?	*On a box.*	*On a box.*
38. What color were the flowers?	*I don't no.*	*Green.*
39. How many flowers were there?	*I don't no.*	*I don't no.*
40. What color were the leaves?	*Green.*	*The leaves were green.*
41. How many leaves were there?	*I don't no.*	*Four.*
42. What color was the flower-pot?	*The flower-pot was red and green.*	*Green.*
43. What color was the box?	*The box was white.*	*White.*
44. What did you see through the open window?	*I did not see anything.*	*Nothing.*
45. What did you see through the open door?	*Nothing.*	*Nothing.*
46. Did you see a window?	*Yes.*	*Yes.*
47. What color were the walls of the room?	*I don't no.*	*I don't no.*
48. What color was the carpet?	*I don't no.*	*They hadn't got a carpet.*
49. Did you see a carpet?	*No.*	*No.*
50. What room was it?	*I don't no.*	*The kitchen.*

Marking of John S——'s First and Second Sets of Answers.

The answers are poor and rather below the average for the grade or standard in which the boy is classed. He obtains 24 marks for the first week and 25 the second week. John's characteristic answer is "I don't no." This answer may very well be typical of a boy who refuses to guess and demands a distinct memory before he will venture on an assertion; but it may also, as in the present case, be found a very present help in trouble when the boy is rather stupid and knows very little. A good guess in itself implies much previous accurate observation, though it may not be applicable to the present case. When

John does guess, he sometimes guesses very badly, as when he calls the flower-pot 'red and green' the first week and 'green' the week after. His written answer the second week appeared to indicate that he had observed how the boy was holding his piece of bread, but a request to show the way the boy was holding it made it evident that he did *not* know. The accuracy of these interrogations is distinctly below that of the average of the 5-year-old infant-school children.

John S——'s Self-Correction.

"I said there was a window and there is not. I said there was no carpet and there is a carpet. I said there were four leaves and there is five. I said the boy had a black coat and he has a green coat. I said the boy had a black pair of trousers and he has a pare of red trousers. I said the boy had black hair and he has yellow. I said the boy had black stockings and he has blue. I said the lady had a white apron and she has a red one."

Marking of John S——'s Self-Corrections.

There are 6 quite obvious corrections, but the assertion of the carpet is a new error, and the alteration of 'four' leaves into 'five' is a curious blunder, as it is obvious that the boy, who is 9 years old, had actually looked at the leaves to ascertain their number at this final exposure of the picture.

Comments on Table XIII.

The First Report of the Standard III girls is, unfortunately, not a reliable index of their capacity for reporting what they have seen; for recently, be-

fore the experiment commenced, they had received a lesson in writing a story about a picture, and several girls had been influenced by that lesson and had not understood that they were required to report on what they had seen, and not to write a story about it. Doubtless, this attitude towards the picture somewhat influenced their capacity to answer questions on it; and that the low mark for the first report was principally due to misunderstanding is indicated by the mark obtained by the girls for their second reports. There is a decided advance on the work of the Standard II children, both of the boys and girls, and the same relationships subsist between the work of the boys and girls as was found previously. In their capacity to answer the interrogatories and in self-correction the boys and girls are practically the same, whilst in their power of reporting the girls are much superior. It is, however, important to note that the boys of this class (or standard) average 5 months older than the girls. And we may again profitably note that the marks are lower than those of the infant-school children.

TABLE XIII.

SCORES OF THE STANDARD III CHILDREN, BOTH SEXES, SCHOOL C.

	Average Age. Yrs.	Mths.		First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self. Correction.
34 Girls	9	9.9	Aver. Mark.....	28.2	25.1	45.2	27.9	4.9
			Mean Variation.....	9.1	4.6	8.2	5.0	1.3
			Coefficient of Variability..	.32	.18	.18	.18	.27
42 Boys	10	2.9	Aver. Mark.....	27.4	26.5	35.6	28.3	5.5
			Mean Variation.....	5.4	4.2	8.5	3.6	2.0
			Coefficient of Variability..	.19	.16	.24	.13	.36

V. The Work of the Standard IV Boys and Girls.

The work of this grade will be illustrated by the papers of Charles B——, aged 10 years 7 months, whose marks were slightly below the average mark for his class.

Charles B——'s First Spontaneous Report.

"In the picture there is a woman and her son. There is a chair and table, and on the table is a knife. In the chair sits a boy eating some bread and butter. Underneath the chair is an earthernware jug. The door is half open. On the floor is a book with a bookmarker to keep the page. The walls of the house are a pale green. The floor is brown. The woman has brown hair and wears a pink coloured dress. She also wears a green coloured blouse. By the open door is a plant which looks like a geranium. It is planted in a red flower-pot, and is situated on a pile of bricks which form a square. The bricks are colour red. On the table there is a loaf of bread. The jug underneath the chair in which the boy is sitting is broken. The book marker is coloured black."

Marking of Charles B——'s First Report.

This is a clearly written report, and looks as if it had been prepared in answer to our interrogatories; but the true relationship is an inverse one; the questions were, of course, largely determined by the children's spontaneous reports.

There are enumerative marks for 'woman,' 'chair,' 'table,' 'knife,' 'boy,' 'bread,' 'jug,' 'floor,' 'book'

(the satchel), 'bookmarker' (the supports of the satchel), 'walls,' 'hair,' 'dress,' 'blouse,' 'plant,' 'geranium,' 'flower-pot,' 'pile of bricks' (the box), and 'loaf;' a total of 20.

The boy 'sits' and 'is eating.'

The positional references number nine. There are several accurate qualifications, 7 in all. Twice Charles calls blue by the name of 'green' and calls the blue dress 'pink;' though this latter error may be due to confusion with the color of the apron.

Thirty-eight marks are scored by the first report.

Charles B——'s Second Spontaneous Report.

"In the picture there is a lady and her son. The boy is sitting on a chair. He has a piece of bread in his hands. Underneath the chair is a broken jug. The boy has blue trousers and a green jacket. The lady is standing at the right side of the table. In her hand she holds a knife, and in the other she holds a loaf. She wears a blue skirt. Her hair is brown. On her feet she wears brown slippers. She also wears an apron which is white. The door is open. There is no window. By the door is a pile of bricks. On top of the bricks is a geraineum. The plant is planted in a red pot. On the floor is a book with a book marker in it. It lies with its back on the floor. On the table is a knife. Underneath the table is a broken jug."

Marking of Charles B——'s Second Report.

Charles has written a very clear report, closely resembling his first one.

Enumerative items admit a total of 21 marks.

The knife appears twice, and so does the jug; in each case once placed rightly and once wrongly.

There are 2 references to action and 14 to position.

The correct qualifications are as follows: the jug is 'broken;' the boy's jacket is 'green;' the lady's skirt is 'blue;' and her hair 'brown;' the flower-pot is 'red:'—a total of 5.

Charles scores 42 marks for his second report, which is 3.5 less than the average for his class (standard) and one mark less than the average mark of the 7-year-old children of School A.

CHARLES B——'S FIRST AND SECOND SETS OF ANSWERS.

QUESTIONS.	FIRST SET OF ANSWERS.	SECOND SET OF ANSWERS.
1. Which side of the table was the lady standing?	*Right.*	*Right.*
2. What was she doing?	*Cutting bread.*	*Cut some bread.*
3. How was she holding what she had in her hand?	*In her left hand.*	*In her right hand.*
4. Had the lady anything else in her hand beside what you have told me about?	*Yes.*	*Yes.*
5. What clothes was the lady wearing?	*Blouse and skirt.*	*A blouse and skirt.*
6. What sort of a hat had the lady?	*She had no hat.*	*None.*
7. What was she wearing on her feet?	*Shoes.*	*Slippers.*
8. Could you see her feet?	*Yes.*	*Yes.*
9. Had she a pinafore or apron on?	*Apron.*	*Yes.*
10. Had she a frock on?	*No, she had a blouse and skirt.*	*No, she had a blouse and skirt.*
11. What color was her blouse or the top part of her frock?	*Green.*	*blouse blue.*
12. What color was her skirt?	*Pink.*	*Skirt blue.*

Questions.	First Set of Answers.	Second Set of Answers.
13. What color was her apron or pinafore?	*White.*	*Apron white.*
14. What color were her boots or shoes?	*Brown.*	*Shose brown.*
15. What color was her hair?	*Hair Brown.*	*Hair Brown.*
16. What was the boy doing?	*Eating.*	*Eating.*
17. He had something in his hand; how was he holding it?	*Up to his mouth.*	*Up to his mouth.*
18. Where were the boy's feet?	*On the chair.*	*On the rungs of the chair.*
19. What clothes was the boy wearing?	*Blouse and knickers.*	*Trousers and jacket.*
20. What color was the boy's coat or jacket?	*Coat, light blue.*	*Boy's coat, blue.*
21. What color were the boy's trousers or knickers?	*Light blue.*	*Trousers green.*
22. What color were the boy's boots or shoes?	*Brown.*	*Boys' shose brown.*
23. What color were the boy's stockings?	*Black.*	*Boys' stockings black.*
24. What color was his hair?	*Hair, brown.*	*boys' hair black.*
25. What sort of boots had the boy?	*Brown.*	*Shoes black.*
26. What sort of shoes had he?	*He had boots.*	*Black.*
27. Did you see anything under the boy's chair?	*Yes.*	*Yes.*
28. Did you see a jug or vase?	*A jug.*	*Yes.*
29. What color was the jug or vase?	*Brown.*	*jug, brown.*
30. Did you see anything on the floor near the jug or vase, and if so, what was it?	*Yes, a book.*	*Yes, a book.*
31. What color was the table?	*White.*	*Table Brown.*
32. What else was on the table beside the thing that the lady was holding?	*A loaf.*	*Knife.*
33. Did you see a knife?	*Yes.*	*Yes.*
34. Whereabouts on the table was it?	*In the middle.*	*Middle.*

Questions.	First Set of Answers.	Second Set of Answers.
35. What color was the knife?	*White, what you cut with.*	*handle yellow.*
36. Did you see a flower-pot?	*Yes.*	*Yes.*
37. Where was it?	*by the door.*	*by the door.*
38. What color were the flowers?	*Yellow.*	*Yellow flowers.*
39. How many flowers were there?	*three.*	*about a dozen.*
40. What color were the leaves?	*Green.*	*leaves green.*
41. How many leaves were there?	*Half-a-dozen.*	*A lot.*
42. What color was the flower-pot?	*Red.*	*flower-pot Red.*
43. What color was the box?	*Pale Brown.*	*box light brown.*
44. What did you see through the open window?	*Trees.*	*no window.*
45. What did you see through the open door?	*Trees.*	*The garden.*
46. Did you see a window?	*No.*	*No.*
47. What color were the walls of the room?	*Pale brown.*	*Walls white.*
48. What color was the carpet?	*No carpet.*	*no carpet.*
49. Did you see a carpet?	*No.*	*No.*
50. What room was it?	*Kitchen.*	*Kitchen.*

Marking of Charles B——'s Answers.

Charles obtains 26 marks for his first interrogatory and 30 for his second. This mark is slightly below the average mark for his class for the first, and almost identical with the average mark for the second set of answers. The work is at the same level as that of the 5-year-old children of School A, and decidedly below that of the 5-year-old children of School B. His answer to Question 10 is not regarded as correct; for though 'blouse' has been accepted in the answer to Question 6, provided that apron or pinafore and skirt have been noted as well,

and accepted on the ground that a knowledge of the distinction between a lady's blouse and the upper part of her frock is not possessed by many children, yet this boy clearly does distinguish and does so wrongly. He accepts erroneous suggestions less easily the second week (Questions 25, 26, 44), but his flowers and leaves increase in number and are more inaccurately remembered (Questions 39 and 41); his colors, contrary to the general tendency, are slightly more accurately remembered the second week than the first.

Charles B——'s Self Correction.

Charles at first wrote that the picture now exhibited was 'A different picture,' and wrote no more; but, on being assured that the picture was really the picture that he had seen 8 days before, wrote the following corrections of his reports and interrogatories.

"I thought her apron was white, but it is red. I thought his coat was blue, but it is green. The walls are gray and I thought they were brown. His trousers are red I thought they were green. The lady is dressed in blue but I thought she was dressed in green. The plant is on a box. I thought it was on some bricks."

Marking of Charles B——'s Self-Correction.

The first four corrections are quite clear. Green and pink were given as the colors of the woman's dress in the first interrogatory, but corrected in the second (Questions 11 and 12); a mark, however, is allowed on the ground that the wrong assertion *had*

been made and was now corrected. "Pile of bricks" has been accepted as a reasonable identification of the box in the corner; but as it is more like a box than a pile of bricks, the last sentence about the box and bricks is accepted as a correction. Charles receives 6 marks for self-correction, which is slightly higher than the average mark for his standard (class) and slightly lower than that of the 5-year-old children of School B.

TABLE XIV.

SCORES OF THE STANDARD IV CHILDREN, BOTH SEXES, SCHOOL C.

	Average Age. Yrs.	Mths.		First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Correction.
54 Girls	10	9.5	Aver. Mark.....	42.5	29.0	49.8	30.2	6.3
			Mean Variation.....	10.6	4.0	12.3	3.1	1.8
			Coefficient of Variability..	.25	.14	.25	.10	.29
41 Boys	11	1.2	Aver. Mark.....	39.6	28.5	44.5	29.7	5.4
			Mean Variation.....	8.2	3.4	8.2	3.5	1.6
			Coefficient of Variability..	.21	.12	.18	.12	.30

Comments on Table XIV.

There is a distinct advance in all respects upon the work of the Standard III children, and, so far as reporting is concerned, the work of the infant-school children has now been surpassed, but in the interrogatories the infant-school children still more than hold their own. In comparing the work of the boys and the girls it is important to note the greater age of the boys in this standard, since there are indications that the girls are forging ahead of the boys in their capacity to answer questions on what they have observed, as indeed is clearly found to be the case when boys and girls of the same age

are compared. We have already seen reason to believe that, in their power of reporting, the girls, standard for standard, are in advance of the boys; and the present result strengthens that belief.

VI. The Work of the Standard V Boys and Girls.

The work of this standard will be illustrated by means of a girl's papers, worked by Connie T——, aged 11 years 9 months. The papers are slightly above the average of those worked in the Standard V girls' class.

Connie T——'s First Spontaneous Report.

"In the picture I saw a little boy and his mother. His mother was holding a coco-nut. She had cut a piece out and he was eating it. A knife was on the table with a black handle. The little boy's mother had brown hair, and so had the boy. The little boy had a red blouse and blue knickers on. The door of the house was open and was painted brown. The boy was sitting at a table which was painted brown. He was sitting on a brown chair and the part of the chair that is used for sitting on had holes in it. The little boy had socks on which were brown and black shoes. His hair was short and a little bit curly. By the door was a box with a dark red pot on it. In the pot was a geranum with a red blossom. The mould was very black and looked rich looking mould. The box on which it was standing was a light brown. In the picture there were no pictures hanging on the floor there were bare boards. The little boy and his mother were dressed nicely. There was on the floor a book with a red cover and the leaves were white

the book was broken a little. The mother had a white apron on and she was not very tall and not very short.''

Marking of Connie T——'s First Report.

It is quite obvious that this report represents a considerable advance on those previously given.

Enumerative marks are given for 'little boy,' 'mother,' 'cocoanut' (the hemispherical loaf of bread), 'piece' (the bread which the boy was holding), 'knife,' 'table,' 'handle' (of the knife), 'hair' (the mother's), 'hair' (the boy's), 'blouse,' 'knickers,' 'door,' 'chair,' 'part of the chair used for sitting on,' 'holes' (in the seat of the chair), 'shoes,' 'box,' 'pot,' 'geranium,' 'blossom,' 'room,' 'floor,' 'book,' 'cover' (of the book), 'leaves' (of the book), 'legs' (of the table), and 'apron:' a total of 27.

The woman is 'holding' the cocoanut and the boy is 'eating' and 'sitting.'

A knife was 'on' the table; the door was 'open'; the boy was 'at' the table 'on' a chair; there were holes 'in' the seat of the chair; a box was 'by' the door with a pot 'on' it; and there was a book 'on' the floor; a total of 8 positional references.

Connie is very successful with her qualifications: the handle of the knife was 'black;' the woman's hair was 'brown;' the boy's hair was 'brown;' the door was 'brown;' the chair was 'brown;' the boy's shoes were 'black;' his hair was 'short' and 'curly,' 'a little bit;' the pot was 'dark red,' and the blossom of the plant was 'red;' the box was 'light brown;' the floor was 'bare;' both the woman and the boy were dressed 'nicely' (two marks); the cover of the

book was 'red,' and 'broken' 'a little;' the table had 'four' legs; the lady was of 'medium' height (not very tall and not very short): thus scoring a total of 20 marks.

Fifty-eight marks are thus obtained for the first report.

Connie T——'s Second Spontaneous Report.

"In the picture there was a little boy and his mother. The mother was holding a cocoa-nut. The little boy was holding a piece of cocoa-nut and eating it, it was a piece that had been cut out of the cocoa-nut. The mother had light brown hair. She had a blue blouse and a black skirt and white apron. Her shoes were just peeping out of her skirt and they were black. The little boys hair was light brown and he had a blue blouse and red knickers. He also had blue socks and brown shoes. He was sitting back on a cane chair, which was brown. There was a table in the room which was light brown it had four legs. On the table was a knife with a brown handle. There was also a door which was open. By the door there was a light brown box. On the box there was a flower-pot. The flower-pot was dark red. There was some rich-looking mould in the flower-pot. In the pot there was a geranium. The flower was red and there was five flowers and seven leaves. Some of the leaves were green and some yellow. There was on the floor by the chair a book which had a red cover and was bound in black, it was broken a little. The walls were black. It looked like the kitchen and it was badly furnished. There was no lino on the floor."

Marking of Connie T——'s Second Report.

Again we have a full and clear report, very like the first one, but influenced here and there by the questions of the first interrogatory. Enumerative marks are obtained for 31 items.

The mother was 'holding' the cocoa-nut; the little boy was 'holding' a piece of the cocoa-nut, was 'eating' it, and 'sitting' on a chair. There are also 10 references to position and 18 qualifications.

Connie T—— thus scores 62 marks for her second report. It is very doubtful whether anything is to be seen in the flower-pot which is distinguishable as mould at all; it is quite certain that nothing can be seen to indicate that it is rich mould.

CONNIE T——'S FIRST AND SECOND SETS OF ANSWERS.

QUESTIONS.	FIRST SET OF ANSWERS.	SECOND SET OF ANSWERS.
1. Which side of the table was the lady standing?	*Right side.*	*Right side.*
2. What was the lady doing?	*Holding a cocoa-nut.*	*Looking at the boy.*
3. How was she holding what she had in her hand?	*Holding it to the boy.*	*In her two hands (showed wrongly).*
4. Had the lady anything else in her hand besides what you have told me about?	*No.*	*No.*
5. What clothes was the lady wearing?	*Blouse and skirt.*	*Blouse and skirt.*
6. What sort of a hat had she?	*Nurse's cap.*	*A nurse's cap.*
7. What was she wearing on her feet?	*Black shoes.*	*shoes.*
8. Could you see her feet?	*No.*	*Yes, the tips of her black shoes.*
9. Had she a pinafore or apron on?	*Yes.*	*Yes.*
10. Had she a frock on?	*Yes.*	*Yes.*

Questions.	First Set of Answers.	Second Set of Answers.
11. What color was her blouse or the top part of her frock?	*Blue blouse.*	*Blue.*
12. What color was her skirt?	*Black skirt.*	*Black.*
13. What was the color of her apron or pinafore?	*White apron.*	*White.*
14. What color were her boots or shoes?	*Black shoes.*	*Black shoes.*
15. What color was her hair?	*Lightish brown hair.*	*Light brown.*
16. What was the boy doing?	*Eating a piece of cocoa-nut.*	*Eating a cocoa-nut.*
17. He had something in his hand; how was he holding it,	*Between thumb and four fingers.*	*Between his finger and thumb (showed wrongly).*
18. Where were the boy's feet?	*Hanging by the chair.*	*Leaning on the chair.*
19. What clothes was the boy wearing?	*Blue blouse and red knickers.*	*Blouse and knickers.*
20. What color was the boy's coat or jacket?	*Blue blouse.*	*Blue blouse.*
21. What color were his trousers or knickers?	*red knickers.*	*Black.*
22. What color were the boy's boots or shoes?	*Black shoes.*	*black.*
23. What color were his stockings?	*Black stockings.*	*Black.*
24. What color was his hair?	*Light Brown.*	*Light Brown.*
25. What sort of boots had the boy?	*Slippers.*	*Slippers.*
26. What sort of shoes had he?	*I forget.*	*black ones.*
27. Did you see anything under the boy's chair?	*No.*	*No.*
28. Did you see a jug or vase?	*No.*	*No.*
29. What color was the jug or vase?	*I forget.*	*There was not a jug at all.*
30. Did you see anything on the floor near the jug or vase, and if you did, what was it?	*Yes, a book.*	*Yes (see second report).*
31. What color was the table?	*Brown.*	*Brown.*

Questions.	First Set of Answers.	Second Set of Answers.
32. What else was there on the table beside what the lady was holding?	*A knife.*	*A knife.*
33. Did you see a knife?	*Yes.*	*Yes.*
34. Whereabouts on the table was it?	*Near the boy.*	*Near the mother.*
35. What color was the knife?	*Brown handle.*	*Light brown handle.*
36. Did you see a flower-pot?	*Yes.*	*Yes.*
37. Whereabouts was it?	*On a box near the window.*	*On the box by the window.*
38. What color were the flowers?	*Red flowers.*	*Red flowers.*
39. How many flowers were there?	*5.*	*Five flowers.*
40. What color were the leaves?	*Some green, some yellow.*	*Some green, some yellow.*
41. How many leaves were there?	*7.*	*Severn leaves.*
42. What color was the flower-pot?	*Red.*	*Dark red flower pot.*
43. What color was the box?	*Brown.*	*Light brown box.*
44. What did you see through the open window?	*Nothing.*	*Nothing.*
45. What did you see through the open door?	*Nothing.*	*Nothing.*
46. Did you see a window?	*Yes.*	*No.*
47. What color were the walls of the room?	*Black walls.*	*Black.*
48. What color was the carpet?	*There was not any carpet.*	*There was not any.*
49. Did you see a carpet?	*No.*	*No.*
50. What room was it?	*Kitchen.*	*Kitchen.*

Marking of Connie T——'s First and Second Sets of Answers.

In the first interrogatory Connie obtains marks for 31 correct answers, and in the second 32; in each case about two or three marks lower than the average for the grade or standard. The two sets of answers are almost identical. She was not sure, on

the first time of asking, that the lady's feet were visible; but, by the second week, remembered that the tips of her shoes could be seen (Question 8). Also by the second week she was quite sure that there was no window; the position of the boy's legs seemed clearer too after the lapse of time; but the question as to the color of the boy's knickers, rightly answered a day after the observation, was forgotten a week afterwards; although the day before, in her second report, she had stated that they were red. The handle of the knife was 'brown' the first week, which is a fair description, but 'light brown' the second week, which is certainly wrong.

These interrogations are at about the same level as those of the 6-year-old infants of School A.

Connie T——'s Self-Correction.

"I said the lady had a black skirt and she had a blue one. I said the lady had a white apron and it is red. I said there was not a jug under the chair and there is a green one. I said the book was bound in black and it is bound in red. I said the boy had a blue suit and he has a green blouse. I said there were seven leaves and there are nine. I said there were five flowers and there are three. I said the leaves were green and they have some black in them. I said the little boy had black stockings and he has blue. I said the lady had light brown hair and she has dark brown hair. I said it was a brown-handled knife and it is a black-handled knife."

Marking of Connie T——'s Self-Correction.

Most of these corrections, numbering 11 altogether, are quite clear and definite. Two marks are

obtained for the correction about the jug; its existence, formerly denied, is now asserted, and its color, necessarily omitted, is now given. I am doubtful whether the woman's hair ought to be called dark brown or light brown, but the girl's assertion that light brown is wrong is accepted as a correction. It is also very doubtful whether the handle of the knife is dark brown or black, but again the correction is accepted; for, in her second interrogatory, Connie had called it 'light brown,' which is certainly wrong. The self-correction is two or three marks above the average for the standard.

TABLE XV.

SCORES OF THE STANDARD V CHILDREN, BOTH SEXES, SCHOOL C.

	Average Age. Yrs.	Mths.		First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Correction.
42 Girls	12	1.8	Aver. Mark.....	59.5	33.1	65.2	35.7	7.5
			Mean Variation.....	10.4	3.6	9.8	3.5	1.9
			Coefficient of Variability..	.17	.11	.15	.09	.25
32 Boys	12	2.9	Aver. Mark.....	41.9	29.6	46.8	31.7	9.0
			Mean Variation.....	7.2	3.4	8.0	2.2	2.1
			Coefficient of Variability..	.17	.11	.17	.07	.23

Comments on Table XV.

There is an advance on the work of Standard IV, slight, except in the power of self-correction, on the part of the boys, but very marked in the case of the girls. It is, of course, to be noted that this is the first standard in which the ages of the boys and girls are practically the same, though even here the boys are slightly older. In the interrogatories these children are not yet outside the infant-school range, but

in the reports the girls are definitely so, though the boys are scarcely better than the 7-year-old infants of School B. Comparison between the boys and girls shows the girls to be superior all along the line, except in their power of self-correction; but the girls have fewer errors to correct in this and the succeeding grades.

VII. The Work of the Standard VI Children, Boys and Girls, of School C.

The work of this grade will be illustrated by the papers of a boy, Thomas G——, aged 12 years 5 months. His work is somewhat uneven, being quite average work for the first week, and in the second week showing no improvement in his report, but great improvement in his interrogatory. His self-correction is normal for the standard.

Thomas G——'s First Spontaneous Report.

"In the picture I saw a wooden table with a lady and a boy beside it. The boy was sitting on a chair eating. The lady had a large bowl in her hands. I also saw a large box with a flower-pot on it; the plant was in full-bloom. Under the table was a large pitcher and on the floor was a book with two hookers on it. There was also a large wooden door which was partly open. The chair on which the boy was sitting was made of wood. The plant that was on the box was a geranium. On the boy's back was a school-bag so that illustrates probably the boy was going to school."

Marking of Thomas G——'s First Report.

The report is clearly written and tersely expressed, but Thomas appears to have very little to say. He enumerates very few of the things represented in the picture.

Marks are obtained for 15 items. The school-bag mentioned may have been the satchel on the floor, but this has been definitely called 'a book with two hookers,' and it certainly is not on the boy's back. Perhaps the inclusion of the school-bag is merely an error of association; but the second report makes this somewhat doubtful.

The boy is 'sitting' and 'eating.'

Positional references total 9.

The correct qualifications are more numerous than is usual with younger children, except that, throughout the whole of this and the next week's report, there is only one reference to color, and that one doubtful. The boy has noticed the colors, as we find by his interrogatories, but he has not deemed them worthy of a place in his reports; they are probably not aspects interesting to him. The qualifications he does give are as follow: the table, the door, and the chair are 'made of wood' (three marks); the bowl, the box, and the pitcher are 'large' (three marks); the plant is in 'bloom' (full is a doubtful qualification); the book has 'two' hookers, and the door is 'partly' open: a total of 9.

Thomas scores a total of 35 marks for his first report.

Thomas G——'s Second Spontaneous Report.

"In the picture I saw a large wooden box with a plant. The plant had about six flowers and about

twenty leaves; the plant was named a geranium. There was also a door which was partly open. A large table was near the door. A small boy was sitting on a wooden chair near the table. Under the chair on which the boy was sitting was a school-bag; the boy had something in his hand which he appeared to be eating. A woman was at the left-hand side of the table. Between her two hands she had what appeared to be a large bowl. Under the table was a lage (this word spelt wrongly) pitcher, and on the floor near the boy was a book with two hookers on it. The colour of the walls was a cambridge colour."*

Marking of Thomas G——'s Second Report.

Again Thomas has given a clear report much resembling his first. The most interesting point lies in the reappearance of the school-bag, which, however, is no longer placed on the boy's back, but under the chair; yet the actual satchel still seems to be identified as a "book with two hookers."

Seventeen enumerative marks are obtained. There are two references to action, and seven to position.

The correct qualifications are very similar to those previously given: the box, table, bowl and pitcher are 'large' (four marks); the box and the chair are made of 'wood' (two marks); the door is 'partly' open; the boy is a 'small' boy; the woman's 'two' hands appear to have been observed; there are 'two' hookers (the supports of the satchel); and the walls are a 'Cambridge' color. The grayish blue of the walls may, perhaps, be fairly called a light blue, so that a mark is allowed for the last qualification mentioned, making a total of 11.

*The colors of Cambridge University are light blue.

Thomas scores in all 37 marks for his second report, an improvement of only two marks upon his first.

THOMAS G——'S FIRST AND SECOND SETS OF ANSWERS.

QUESTIONS.	FIRST SET OF ANSWERS.	SECOND SET OF ANSWERS.
1. Which side of the table was the lady standing?	*The left side of the table.*	*The left side of the table.*
2. What was the lady doing?	*Holding a bowl.*	*Holding a bowl in her hands.*
3. How was she holding what she had in her hands?	*Between her two hands (showed wrongly).*	*Between her hands (showed wrongly).*
4. Had she anything else in her hand beside what you have told me about?	*No.*	*No.*
5. What clothes was the lady wearing?	*Bright coloured clothes.*	*Bright coloured clothes.*
6. What sort of a hat had she?	*No hat.*	*Hat, had not one.*
7. What was she wearing on her feet?	*Sandles.*	*Shoes.*
8. Could you see her feet?	*Yes.*	*Yes.*
9. Had she a pinafore or apron on?	*No.*	*Apron.*
10. Had she a frock on?	*Frock, yes.*	*No.*
11. What color was her blouse or the top part of her frock?	*Red. Blouse.*	*Blouse—blue.*
12. What color was her skirt?	*Blue. Frock.*	*Had no skirt.*
13. What color was her apron or pinafore?	*She did not have one.*	*Red.*
14. What color were her boots or shoes?	*Shoes, brown.*	*Brown shoes.*
15. What color was her hair?	*Dark hair.*	*Dark hair.*
16. What was the boy doing?	*Eating.*	*Boy, eating.*
17. How was the boy holding what he had in his hand?	*Between thumb and finger (showed wrongly).*	*Between thumb and finger (showed wrongly).*

Questions.	First Set of Answers.	Second Set of Answers.
18. Where were the boy's feet?	*On rail of the chair.*	*Feet on chair rail.*
19. What clothes was the boy wearing?	*Bright coloured clothes.*	*Bright coloured clothes.*
20. What color was the boy's coat or jacket?	*Coat, blue.*	*Red.*
21. What color were the boy's trousers or knickers?	*Knickers. Red.*	*Blue.*
22. What color were the boy's boots or shoes?	*Shoes, had none.*	*Black.*
23. What color were the boy's stockings?	*Blue stockings.*	*Navy blue.*
24. What was the color of the boy's hair?	*Hair. Fair.*	*Fair.*
25. What sort of boots had the boy?	*had no boots.*	*Shoes, had no boots.*
26. What sort of shoes had he?	*had no shoes.*	*black.*
27. Did you see anything under the boy's chair?	*School-bag.*	*Yes.*
28. Did you see a jug or vase?	*Yes. Vase.*	*No, a large pitcher.*
29. What color was it?	*Jug. White.*	*Green.*
30. Did you see anything on the floor near the jug or vase; if so, what was it?	*Yes, book with two hookers.*	*Yes.*
31. What color was the table?	*Brown table.*	*Brown.*
32. What else was there on the table beside the thing the lady was holding?	*Nothing.*	*Knife.*
33. Did you see a knife?	*No knife.*	*Yes.*
34. Whereabouts on the table was it?	*Nowhere on table.*	*Centre of table.*
35. What color was the knife?	*Was not a knife.*	*Brown handle.*
36. Did you see a flower-pot?	*Yes.*	*Yes.*
37. Where was the flower-pot?	*On a wooden box.*	*On a box.*
38. What color were the flowers?	*Red flowers.*	*Pinkish red.*
39. How many flowers were there?	*Four flowers.*	*Six.*

Questions.	First Set of Answers.	Second Set of Answers.
40. What color were the leaves?	*leaves green.*	*Green.*
41. How many leaves were there?	*leaves ten.*	*about twenty.*
42. What color was the flower-pot?	*Flower Pot. dark red.*	*Red.*
43. What color was the box?	*box. white.*	*White.*
44. What did you see through the open window?	*No window to see through.*	*Was no window.*
45. What did you see through the open door?	*The door was not open wide enough.*	*Nothing.*
46. Did you see a window?	*No.*	*No.*
47. What color were the walls of the room?	*Walls. blue.*	*Blue. light.*
48. What color was the carpet?	*There was no carpet.*	*Was no carpet.*
49. Did you see a carpet?	*No.*	*No.*
50. What room was it?	*Room. Dont no.*	*Probably the kitchen.*

Marking of Thomas G——'s Answers.

Thomas answered 28 questions accurately the first week and 35 the week afterwards, which indicated an exceptional improvement. He denied that the woman had an apron in the first interrogatory, but admitted it and remembered the color a week later. He denied that the boy had either boots or shoes the first week, but allowed shoes the week after. The four questions about the knife (Numbers 32, 33, 34, 35), all answered at first by a denial of the knife, were answered correctly a week later. These corrections could hardly have been due merely to delayed suggestion, since he persevered, and rightly, in his negative answers about the woman's hat, the window, what could be seen through the door, and the carpet. It would appear that the sug-

gestion works affirmatively much more easily when there has been a basis of perception, though temporarily forgotten and even denied.

Thomas G——'s Self-Correction.

"I said the boy's stockings were navy blue they are cambridge colour. I said there were six flowers and twenty leaves there are only three flowers and nine leaves. I said she has no frock but she has a blue one. I also mentioned the boy had a blue blouse and he had a green one; I said the pitcher was under the table but it is under the chair on which the boy is sitting. I mentioned the lady was holding a bowl between her hands but it appears to be part of a loaf of bread. I said the knife was in the centre of the table but it is on the edge. I also said the handle of it was brown but it is black."

Marking of Thomas G——'s Self-Correction.

'Blue' has been allowed, even navy blue, as a correct description of the color of the boy's stockings, but 'Cambridge blue' is more accurate and is therefore allowed as an actual correction. 'Brown' has been regarded as correct for the color of the knife-handle, and, though it is very doubtful whether it ought to be called brown or black, 'black' is accepted as a correction since the boy, on further perception, decides it to be black. The other assertions are straightforward corrections of obvious errors, though, as has already been explained, 'bowl' has been accepted as an identification of the loaf of German bread. Thomas obtains a total of 9 marks for self-correction.

TABLE XVI.

SCORES OF THE STANDARD VI CHILDREN, BOTH SEXES, SCHOOL C.

	Average Age. Yrs.	Mths.		First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Correction.
20 Girls	12	8.0	Aver. Mark.....	66.3	33.8	76.5	34.8	7.6
			Mean Variation.....	12.5	2.5	14.3	3.1	2.3
			Coefficient of Variability..	.19	.07	.19	.09	.30
26 Boys	13	0.3	Aver. Mark.....	34.9	29.5	44.5	31.5	8.9
			Mean Variation.....	9.7	3.7	10.9	2.7	1.1
			Coefficient of Variability..	.28	.13	.24	.09	.12

Comments on Table XVI.

In their power of reporting, the girls continue to make considerable advances upon the work of the preceding standard; but, in their capacity to answer questions on what they have observed, they are apparently on a level with the children of Standard V. The work of the Standard VI boys is also, in this respect, equal to that of the preceding class; whilst, in their power to report, they are found to be below Standard V.

Comparisons between the boys and the girls show the latter to be superior in every respect (except that of self-correction); in the fluency and accuracy of reporting, very seriously superior. And, of course, the boys have many more obvious errors to correct; so that it is doubtful whether they are really better than the girls, even in self-correction. Doubtless, a 'domestic interior' offers more of interest to girls than to boys; but the striking difference in the reports seems more likely to be due to superior development of the girls of this age on the linguistic and observational side. It is well known that girls

will write more than boys; but, in this case, they have written more on an accurate observational basis, and what they have written is relevant to the requirements of the experiment. In their capacity to report, the girls are now enormously advanced beyond the infant-school children, but the boys are not; and in the interrogatories the balance is still slightly in favor of the 7-year-old children of the infant school.

VIII. The Work of the Standard VII Children, Boys and Girls, of School C.

The work of this class or grade will be illustrated by the papers of Mabel P——, aged 13 years 2 months, whose work is, on the whole, just above the average for that of the girls of Standard VII.

Mabel P——'s First Spontaneous Report.

"I can see in the picture a small boy. He has a very pale face. He has golden hair. He is dressed in a green coat, and red knickerbockers. He has blue stockings. Also black shoes. He is sitting on a chair. By his side is a nurse. She is dressed in a blue skirt and blouse. She has on a red apron. In her hand she has a big black basin. She has handed the boy something out of the basin. By the side of the boy there is a table, yellow in colour. On the table is a knife with a dark handle and white blade. At the end of the room there is a door. It is yellow in colour. It is also a little way open. By the side of the boy there is a sort of stand. On this stand is a big red book. By the side of the nurse is a big box. It is yellow in colour. It also has one or two nails in

it. On the box their is a flower pot. In the flower pot are some geraniums. The flowers of the geranium are red. The leaves are green, with black stripes across.

"The nurse's hair is very dark. The boy is evidently an invalid. The homestead looks very poorly furnished. The door has bars of wood across it. The boy's feet are resting on one of the bars of the chair. The nurse is standing. The pot of geraniums are standing on a wooden box, that has one or two bars of wood across."

Marking of Mabel P——'s First Report.

Again we have a report which seems closely to follow the questions of the interrogatory; but, as a matter of fact, the questions have not yet been asked, and the closeness is due to the circumstance that the questions were formed to run along the lines on which the child's mental evolution takes place. The persons and things are mentioned, located, and qualified by adjectival and, to a slight extent, by adverbial description. As we have seen, the reports improve in every respect as the child grows more proficient, but especially in the location and qualification of the things enumerated.

Mabel obtains 34 enumerative marks. The last sentence about the geraniums on the wooden box with bars of wood across it is a repetition of statements which have been made before.

The boy 'is sitting,' the nurse 'is standing,' and 'has handed' the boy something out of the basin. The last assertion, however is thought perhaps too

inferential and doubtful in nature to permit a mark to be given to it as a correct observation.

With locational terms and phrases, Mabel's paper is abundantly supplied. She obtains, in fact, 16 marks for positional references.

But it is in the qualifications attached to the persons and the things enumerated that the more proficient children make their ability especially evident. The boy is 'small,' his face is 'pale,' he has 'golden' hair, a 'green' coat, 'red' knickerbockers, 'blue' stockings, and black 'shoes.' The woman has a 'blue' skirt, a 'blue' blouse, a 'red' apron and 'dark' hair. The basin is 'big' and 'black;' the boy has something 'out' of the basin (similarity of appearance is held to justify this); the table is 'yellow;' the knife has a 'dark' handle and a 'white' blade; the door is 'yellow,' and open 'a little way;' the book on the stand is 'big' and 'red;' the box is 'big;' and the nails are 'one or two' in number. If we accept 'one or two' as an indefinite expression meaning 'several,' this is admissible. The flowers are 'red,' the leaves are 'green,' and the stripes across the leaves are 'black.' The furniture is 'poor' (involved in the phrase 'poorly furnished'). A total of 27 marks is gained for accurate qualification.

Mabel P—— therefore scores 79 marks for her first report.

Mabel P——'s Second Spontaneous Report.

"The boy in the picture has on a green coat. He also has on a pair of red knickerbockers. Also a pair of blue stockings and a pair of black shoes. He is sitting on a chair. He has his feet on the front bar

of the chair. By his chair stands a woman evidently his mother. She has in her hands a big black bowl. She has on a blue skirt and a blue blouse. Over these she has a red apron. She has a very pale face and very dark hair. On the boy's left side there stands a table. It is yellow in color. On the table is a knife. The handle is black and the blade is white. On the right side of the table there is a door. It is yellow in color. It also has two or three bars of wood across it. It is about half-way open. On the right side of the woman there is a big box. It is yellow in color and has some nails in it. It also has a few bars of wood across it. On the box, there is a flower pot. It is red in color and contains a few geraniums. The flowers of the geraniums are red. The leaves are green. The leaves have a thick black stripe across them. There is about three leaves and four flowers. They are in full-bloom by the look of them. On the right side of the boy is a large book. It is red in color and is very thick. The boy is evidently an invalid. He has a very pale face. He has beautiful golden hair. In his hands he is holding, what looks like a piece of cake. The homestead looks extremely poorly furnished. The boy's shoes are laced up ones. The book is on a stand. The boy is about eleven or twelve years of age.

"The stand on which the book is is very dark in color it is almost black. The chair on which the boy is sitting is fairly high. The woman's hair shines very much in the picture. She has handed him some of the contents of the basin. The woman looks very sad. She is of a very slender build."

Marking of Mabel P——'s Second Report.

This report very closely resembles the one given the week before, though it is obviously fuller. One rather noticeable object, the jug under the chair, is still omitted, and, notwithstanding the suggestive force of the questions about the jug, its existence is denied in both the interrogatories. The woman in the picture, formerly identified as a nurse, is now perceived as 'evidently his mother.' The 'something out of the basin' of the first report is now identified as a 'piece of cake.' These identifications improve without any suggestive force in the questions bearing on them. But the boy is still 'evidently an invalid;' this is an inference from a pale face, or, rather, one with no color in the cheeks. And the satchel is still a big red book on a stand; a description, by the way, which several adults have given me from time to time. She no longer tells us that the woman has handed him something out of a basin; the usual tendency at this age is towards observation and away from inference, but possibly the identification of the 'something' as a 'piece of cake' may in this case account for the omission of 'handed out of the basin.'

Enumerative marks are obtained for 37 items, an improvement of 4 marks on the enumeration in the first report. The additional enumerations, involving the bars of wood on the box and the slender figure of the woman, were in no way due to any suggestive influence of the interrogatories, for no questions bore even indirectly on these points.

The boy 'is sitting' and 'holding' a piece of cake. Positional references are numerous. The boy is 'on'

the chair and his feet are 'on' the bar of the chair. Mabel misplaces the woman in relation to the boy, for she is not 'by his chair,' an error evident in both interrogatories. The bowl is 'in' the woman's hands. The apron is 'over' the skirt and blouse. It is doubtful, perhaps, whether 'over' should receive a mark, since the wearing of an apron at all implies such a position. The table is on 'the left side' of the boy; a knife is 'on' the table; and 'on the right side' of the table there is a door. Bars of wood are seen 'across' the door which is 'open.' 'On the right side' of the woman, the box 'in' which there are nails is situated, and bars of wood run 'across' the box. The flower-pot is 'on' the box, and the leaves of the geraniums have black stripes 'across' them. 'On the right side' of the boy is a book, and he has a piece of cake 'in' his hands. The book is 'on' the stand: making a total of 16 references to position.

The accurate qualifications are again very numerous. The boy's coat is 'green;' his knickerbockers are 'red;' his stockings are 'blue' and his shoes are 'black;' his feet are on the 'front' bar of the chair; the bowl is 'big' and 'black.' The woman's skirt is 'blue,' her blouse is 'blue' and her apron is 'red;' her face is 'pale;' her hair is 'dark.' The table is 'yellow.' 'The knife is 'black' in the handle and 'white' in the blade. The door is 'yellow,' but it has *not* 'two or three bars' across it, but it is 'halfway' open. The box is 'big' and 'yellow;' but it has only one, not a 'few' bars across it. The flower-pot is 'red;' the flowers are 'red;' the leaves are 'green' with 'thick,' 'black' stripes, and the flowers are in 'full bloom.' The book (the satchel) is 'large,' 'red'

and 'thick.' The boy's face is 'pale' and his hair is 'beautiful' (a rare aesthetic qualification), and 'golden;' and he is 'about eleven or twelve years old.' The room is 'poorly' 'furnished.' The stand is 'very dark;' the chair is 'fairly' 'high.' The woman's hair 'shines' and shines 'very much;' her figure is 'slender' and she looks 'very sad.' Mabel thus achieves a total of 41 good qualifications. The high total of 96 marks is obtained for this second report.

MABEL P——'S FIRST AND SECOND SETS OF ANSWERS.

QUESTIONS.	FIRST SET OF ANSWERS.	SECOND SET OF ANSWERS.
1. Which side of the table was the lady standing?	*left of the table.*	*The Left.*
2. What was the lady doing?	*She was holding a big basin.*	*She was holding a big black bowl.*
3. How was she holding what she had in her hands?	*She was holding it near the boy's face (showed wrongly).*	*She was holding it with two hands (showed wrongly).*
4. Had she anything else in her hand besides what you have told me about?	*No.*	*No.*
5. What clothes was the lady wearing?	*A blue skirt and blouse. A Red apron.*	*A blue skirt and blouse and a red apron.*
6. What sort of a hat had she?	*She had no hat on.*	*She had no hat on.*
7. What was she wearing on her feet?	*I*	*I could not see anything on her feet.*
8. Could you see her feet?	*No.*	*No.*
9. Had she a pinafore or apron on?	*Yes, she had an apron on.*	*Yes.*
10. Had she a frock on?	*Yes.*	*Yes.*
11. What color was her blouse or the top part of her frock?	*Blue in color blouse.*	*Blue Blouse.*
12. What color was her skirt?	*Blue in color skirt.*	*Blue Skirt.*

13.	What color was her apron or pinafore?	*Red in color apron.*	*Red apron.*
14.	What color were her boots or shoes?	*I did not see any boots.*	*I could not see any.*
15.	What color was her hair?	*A dark brown.*	*A dark brown color was her hair.*
16.	What was the boy doing?	*He was about to eat something.*	*He was holding something in his hand; he was sitting on a chair.*
17.	How was he holding what he had in his hand?	*He was hold.*	*Towards his mouth, holding it with two hands.*
18.	Where were the boy's feet?	*Resting on a bar of the chair.*	*On the front bar of the chair.*
19.	What clothes was the boy wearing?	*A green coat, Red Knickers, Blue Stockings, Black Shoes.*	*A green coat and black shoes, Red knickerbockers, blue stockings.*
20.	What color was the boy's coat or jacket?	*Green coat.*	*Green coat.*
21.	What color were the boy's trousers or knickerbockers?	*Red trosers.*	*Red knickerbockers.*
22.	What color were the boy's boots or shoes?	*Black Shoes.*	*Black Shoes.*
23.	What color were his stockings?	*Blue Stockings.*	*Blue stockings.*
24.	What was the color of the boy's hair?	*Golden Color.*	*Very fair, otherwise golden.*
25.	What sort of boots had the boy?	*Black shoes.*	*Laced shoes.*
26.	What sort of shoes had he?	*Black lace up Shoes.*	*Laced shoes.*
27.	Did you see anything under the boy's chair?	*No.*	*No.*
28.	Did you see a jug?	*No.*	*No.*
29.	What color was the jug?	(No answer.)	*I never saw one.*
30.	Did you see anything on the floor near the jug or vase; if you did, what was it?	*A stand with a book on it.*	*Yes, a big red book.*
31.	What color was the table?	*Yellow.*	*Yellow table.*

32. What else was there on the table beside the thing the lady was holding?	*A knife.*	*A knife.*
33. Did you see a knife?	*Yes.*	*Yes.*
34. Whereabouts on the table was it?	*Next to the basin.*	*On the edge near the boy.*
35. What color was the knife?	*A black handle and a white blade.*	*A black handle and a white blade.*
36. Did you see a flower-pot?	*Yes.*	*Yes.*
37. Where was the flower-pot?	*On a big box.*	*On the right side of the woman standing on a big box.*
38. What color were the flowers?	*Red Flowers.*	*Red flowers.*
39. How many flowers were there?	*I don't remember.*	*About three.*
40. What color were the leaves?	*Green leaves.*	*Green with a thick black stripe across.*
41. How many leaves were there?	*four leaves.*	*four leaves.*
42. What color was the flower-pot?	*Redish color.*	*Red flower pot.*
43. What color was the box?	*Yellowish color.*	*yellow box.*
44. What did you see through the open window?	*There was not a window.*	*I did not see a window.*
45. What did you see through the open door?	*Nothing.*	*Nothing.*
46. Did you see a window?	*No.*	*No.*
47. What color were the walls of the room?	*I did not notice the color.*	*I did not notice the walls.*
48. What color was the carpet?	*I did not see any carpet.*	*There was no carpet.*
49. Did you see a carpet?	*No.*	*No.*
50. What room was it?	*Evidently the kitchen.*	*The kitchen.*

Marking of Mabel P——'s First and Second Sets of Answers.

Mabel's answers are slightly more accurate than the average for her standard. She obtains 38 marks

for her first interrogatory and 39 for her second, given a week later. Though she varies their phrasing from week to week*, there is one case only in which her second week's answers differ in meaning from those given the week before. She did not remember (Question 39) how many flowers there were on the plant when she was asked on February 2nd., but on the 9th. said "About three." There are other indications that the second week's remembrance is clearer than the first, as may easily be seen by reference to the answers to Questions 34, 37 and 40. Her resistance to suggestibility is very high; and, had she not failed to notice the jug and displaced the woman, she would have reached a total of 43 marks, the highest mark obtained by any girl of her grade. The highest mark obtained by any boy of the corresponding grade or standard was 38.

Mabel P——'s Self-Corrections.

"1. I said there was nothing under the boy's chair, but there is a green jug.

2. I said I did not notice the walls of the room, they are a grayish blue.

3. I said there was only 4 geranium leaves there are nine.

4. I said the handle of the knife was black, it is a very dark brown.

5. I said the boy was holding his food with both hands he is only holding it with one hand.

6. I said the woman was at the left of the table, she is in front of the table.

*It will be remembered that the children had no chance of seeing their first week's answers when giving those of the second week.

7. I said he had laced shoes, but I cannot see whether they were laced or buttoned.

8. I said I could not see her feet but I can see them now.

9. I said she had no shoes on but she has black ones on.

10. I said the door was yellow but it is streaked with green and red."

Marking of Mabel P——'s Self-Corrections.

This is excellent work. Two marks are obtained for the first sentence, for the existence and color of the jug, formerly omitted, are now inserted. The corrections in Sentences 2 and 3 are obvious. 'Black' is allowed for the knife-handle, but 'very dark brown' is nearer to complete accuracy, and is accepted as a correction. Sentence 5 is an obvious correction. In Sentence 6, Mabel realizes that she has misplaced the woman, and, if we accept the larger edge of the table as the 'front,' the statement may be regarded as a correction. 'Laced shoes' was an acceptable answer, but the correction in Sentence 7 is a real one. Corrections 8 and 9 are obvious. It is right to say the door is 'yellow' or 'brown,' but it is the correction of an omission to say "it is streaked with green and red."

Mabel scores 10 or 11 marks for self-correction, according as we do or do not accept her answer about the front of the table. Her mark has been listed as 10, two and a half marks above the average for her grade in the girls' school, and one mark above the corresponding mark for her grade in the boys' school. The boys, of course, had more obvious errors to correct.

TABLE XVII.

SCORES OF THE STANDARD VII CHILDREN, BOTH SEXES, SCHOOL C.

	Average Age. Yrs.	Mths.		First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Correction.
14 Girls	13	1.8	Aver. Mark.....	81.4	34.5	89.6	36.2	7.5
			Mean Variation.....	16.8	4.0	13.4	3.4	2.2
			Coefficient of Variability..	.20	.11	.15	.09	.29
10 Boys	13	7.5	Aver. Mark.....	34.9	31.4	50.6	32.3	9.0
			Mean Variation.....	4.3	3.2	8.6	3.7	2.0
			Coefficient of Variability..	.13	.10	.17	.11	.22

Comments on Table XVII.

The boys show a slight advance on the work of the preceding standard and the girls show a very great advance in their reports and a smaller one in their interrogatories. Even the boys are now beyond the range of the 7-year-old infant-school children in their capacity to report accurately on what they have seen, though only slightly so; and the 6-year-old infants of School B are still slightly superior; but the 7th standard girls are very greatly superior to the children of all previous standards. In the interrogatories there is still very little difference between the infants and the boys and girls. The girls' work is slightly above that of the best of the infants, and the boys' decidedly below it.

The comparison between the work of the boys and girls of the same school grade (Standard VII) is markedly in favor of the girls, though the girls of this standard are 6 months younger than the boys. The high variability in the girls' reports is due to the extremely good work of two or three girls who score marks well over the hundred; the highest mark

TABLE XVIII.

WORK OF BOYS AND GIRLS COMPARED AGE BY AGE (AVERAGE MARKS WITH COEFFICIENTS OF VARIABILITY*).†

	Average Age. Yrs.	Mths.		First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Correction.
28 Girls	8	6.6	Aver. Mark.....	29.1	25.2	37.7	26.4	5.3
			Coefficient of Variability..	.30	.10	.18	.11	.36
32 Boys	8	6.2	Aver. Mark.....	24.2	23.9	24.4	25.0	3.9
			Coefficient of Variability..	.29	.20	.28	.18	.46
37 Girls	9	4.4	Aver. Mark.....	32.7	25.7	41.6	26.9	5.2
			Coefficient of Variability..	.29	.17	.25	.15	.29
34 Boys	9	4.9	Aver. Mark.....	28.4	27.4	33.2	28.6	5.1
			Coefficient of Variability..	.29	.12	.30	.13	.37
32 Girls	10	5.6	Aver. Mark.....	39.4	27.8	47.6	30.2	6.0
			Coefficient of Variability..	.27	.17	.19	.13	.22
43 Boys	10	6.1	Aver. Mark.....	32.6	27.4	40.1	29.0	5.4
			Coefficient of Variability..	.24	.15	.23	.13	.44
42 Girls	11	6.0	Aver. Mark.....	52.0	30.7	58.5	32.2	6.6
			Coefficient of Variability..	.27	.13	.26	.13	.29
27 Boys	11	7.0	Aver. Mark.....	36.8	27.9	44.7	29.3	7.3
			Coefficient of Variability..	.22	.12	.19	.13	.34
33 Girls	12	6.3	Aver. Mark.....	65.5	32.8	73.6	35.1	7.0
			Coefficient of Variability..	.24	.13	.22	.10	.34
31 Boys	12	4.3	Aver. Mark.....	36.8	28.9	41.1	31.2	7.6
			Coefficient of Variability..	.21	.13	.21	.09	.28
26 Girls	13	6.0	Aver. Mark.....	64.9	33.8	73.6	35.6	7.0
			Coefficient of Variability..	.15	.09	.22	.08	.24
26 Boys	13	5.6	Aver. Mark.....	39.3	30.7	47.8	31.7	8.8
			Coefficient of Variability..	.28	.11	.26	.08	.23

*The coefficient of variability used in the above table is the quotient of the mean variation divided by the average.

†The results shown in this table should be compared with those of infants in Table XI.

TABLE XIX.

THE PERCENTAGE INCREASE IN ACCURACY FROM THE FIRST TO THE SECOND INTERROGATORY; BOYS AND GIRLS COMPARED, SCHOOL C.

Age-Group.	No.	Sex.	Aver. Mark First Interrogatory.	Aver. Mark Second Interrogatory.	Percentage Increase.
8-year.....	28	Girls	25.2	26.4	5%
	32	Boys	23.9	25.0	5%
9-year.....	37	Girls	25.7	26.9	5%
	34	Boys	27.4	28.6	4%
10-year.....	32	Girls	27.8	30.2	9%
	43	Boys	27.4	29.0	6%
11-year.....	42	Girls	30.7	32.2	5%
	27	Boys	27.9	29.3	5%
12-year.....	33	Girls	32.8	35.1	7%
	31	Boys	28.9	31.2	8%
13-year.....	26	Girls	33.8	35.6	5%
	26	Boys	30.7	31.7	3%

achieved by any boy of the corresponding grade is 76. Not only are the girls superior in their capacity to report accurately on what they have noticed, they are also superior in accurate observation, as shown by their superior marks in both interrogatories. Doubtless some of this superiority is due to the subject-matter of the picture, but, in my judgment, not very much; this consideration, however, impels us to further research with the subject-matter in favor of the boys.

IX. The Work of Boys and Girls Compared Age by Age.

Hitherto the work of boys and girls has been compared standard by standard, but such a proceeding is not quite fair. For the schools may be differently organised; the boys may be promoted more rapidly than the girls or *vice versa*. Let us now therefore cut right across the school organisation and show the work of the boys and girls of corresponding ages.

*Comments on Tables XVIII and XIX.**

Age for age, the girls are undoubtedly superior to the boys—greatly so in their capacity for accurate reporting and definitely so, though to a less degree, in their power to observe accurately. In self-correction, the boys appear to have the advantage slightly; but, as I have pointed out previously, the boys have more obvious errors to correct. There is one break in the regularity of the figures. The girls of Stand-

*There are no girls in the school over 14 years of age, but there are seven boys above 14; these are excluded from Tables XVIII and XIX, though, of course, they appear in the 'standard' groupings elsewhere.

ard III, predominantly 9 years old, had had a lesson on making stories *about* a picture. This is an excellent exercise; but the children did not at once distinguish it from the present exercise, which required them to say *what they actually saw*. Hence their interrogatories were worse than they would otherwise have been. Of course, both these exercises are valuable pedagogically and, indeed, should be used in distinction from each other. For all ages, and for young children especially, to distinguish what one sees from what one thinks in accounting for what one sees is a most valuable mental acquisition, and is rarely possessed by the mentally confused and undisciplined.

The general rise in the character of the work from year to year is more easily seen when the organisation of the schools into standards is cut right across, as it were; though such a generalization might at least have been guessed at with considerable probability from the average marks for the various standards which were given at the end of each descriptive section of the work. The marks for the children over 11 should be slightly higher in both boys' and girls' schools, for a few of the abler children after that age leave to attend secondary or central elementary schools. In the girls' school, for example, seven such children, on a basis of fair sampling, would have to be credited to the 13-year-old section, and five to the 12-year-old section; whilst the corresponding figures for the boys are very similar.

The sex difference in linguistic power as applied to observation, small at first, seems rapidly to differentiate with age, at least up to 14 years. But, of

course, we are not absolutely guarded from the possibility that this is a difference due to the curriculum and method of teaching of the girls' school as compared with the boys. But there is one consideration which makes it very unlikely that we are dealing with an environmental difference rather than one due to sex. For there are five class teachers in the boys' and five in the girls' school, and they are individually different in their methods. Yet, standard by standard, and age by age, the boys and girls differ regularly. It is true that all the girls' teachers are women and all the boys' teachers are men, but that brings us to a sex difference over again. The time-tables of the schools resemble each other in the time given to work in English Composition and to observational work in science. Observational work of the kind given in this experiment was new to both schools.

The figures in these tables now admit of satisfactory comparison, age for age, with those for the infant schools given in a preceding section.

CHAPTER VI.

THE EVOLUTION OF CHILDREN'S PERCEPTUAL JUDGMENTS.

The picture obviously contains many aspects and elements, and an analysis of the children's answers to the questions which were asked will throw much light on their capacities and interests at various ages and grades of mental development.

I. Children's Judgments due to Suggestion.

It is still a disputed point as to whether there is such a thing as general suggestibility, and the following tables will help us to see how far suggestibility, if it exists, diminishes *pari passu* with advancing years and intelligence.

TABLE XX.

Suggestibility in Infants (Boys and Girls, Aged 3 to 7 Years), School A.

	Number of correct answers among—									
	10 boys and girls 3 years old.		10 boys and girls 4 years old.		10 boys and girls 5 years old.		10 boys and girls 6 years old.		10 boys and girls 7 years old.	
Interrogatory.	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
What sort of a hat was the lady wearing?	0	1	4	3	4	6	5	7	10	10
Had the lady anything else in her hand besides the bread or cake or basin, etc.?	3	3	8	9	7	8	9	9	10	10
What kind of boots had the boy?	0	0	1	3	4	3	2	4	8	8
What did you see through the open window?	0	0	7	7	4	5	3	4	7	7
What did you see through the open door?	3	2	4	5	2	4	6	6	6	7
Did you see a window?	0	0	6	7	3	4	3	3	8	9
What color was the carpet?	0	0	1	3	2	4	6	6	7	7
Did you see a carpet?	0	0	3	3	2	4	5	5	7	7
Totals	6	6	34	40	28	38	39	44	63	65

The sequence of the figures will be more conveniently shown by means of a table worked out in percentages.

TABLE XXa.

THE PERCENTAGE OF RESISTANCE TO SUGGESTIBILITY IN INFANTS AT VARIOUS AGES, SCHOOL A.

Age	3 years.		4 years.		5 years.		6 years.		7 years.	
Interrogatory	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
Percentage Resistance	7	7	42	50	35	47	49	55	79	81
Average	7		46		41		52		80	

The figures indicate an enormous decrease in suggestibility (the numbers show the accurate answers —the rejections of the suggested errors) from 3 to 4 years of age, and, with a slight break at 5 years of age, show a continuous decrease up to the age of 7. At this age, the resistance to suggestibility is very high. It is very important to note that the children are less susceptible to suggestion the second week than the first. There appears to be a durability about what was actually seen that does not belong to the creations of the suggestive question.

We now proceed in the same way to examine the resistance to suggestibility in School B.

There are not enough 3-year-old children in this school—situated in a good neighborhood residentially—to enable me to take a fair sample; but the 4-year-old children show similar suggestibility to the 4-year-old children of School A. After this age, the children of School B are markedly superior, with the exception of the 7-year-old children. The 7-year-old children of School B, it will be remembered, were found slightly inferior generally to the 6-year-old children of the same school. It seems, therefore, that, in impermeability to suggested error, we have

TABLE XXI.

SUGGESTIBILITY IN INFANTS (BOYS AND GIRLS AGED 4 TO 7 YEARS), SCHOOL B.

Interrogatory.	Number of correct answers among 10 boys and girls 4 years old.		10 boys and girls 5 years old.		10 boys and girls 6 years old.		10 boys and girls 7 years old.	
	1st	2nd	1st	2nd	1st	2nd	1st	2nd
What sort of a hat was the lady wearing?	6	5	6	9	10	10	10	10
Had the lady anything else in her hand besides the bread, cake, basin, etc.?....	9	10	9	9	10	10	8	8
What kind of boots had the boy?.....	2	2	3	4	6	5	5	5
What did you see through the open window?	4	6	6	6	6	6	9	8
What did you see through the open door?	5	6	6	7	9	8	10	9
Did you see a window?.....	5	5	7	7	8	7	10	9
What color was the carpet?.....	1	1	1	2	6	8	6	6
Did you see a carpet?.....	3	3	3	4	8	10	8	7
Totals.....	35	38	41	48	63	64	66	62

TABLE XXIa.

THE PERCENTAGE OF RESISTANCE TO SUGGESTIBILITY IN INFANTS AT VARIOUS AGES, SCHOOL B.

Age	4 years.		5 years.		6 years.		7 years.	
Interrogatory	1st	2nd	1st	2nd	1st	2nd	1st	2nd
Percentage Resistance.....	44	48	51	60	78	80	83	78
Average	46		56		79		80	

a rather good criterion of general mental development. The superiority of School B over School A is doubtless due to heredity and home environment rather than to pedagogical influences.

Table XXII shows the results with suggestive questions for the girls in School C.

Since, however, the number of children in the different standards or grades varied considerably, it will be necessary in addition to show the results in percentages.

Unless we are prepared to throw the comparative inferiority of these results to those of the infant

TABLE XXII.

SUGGESTIBILITY IN GIRLS (AGED 8 TO 13 YEARS), SCHOOL C.

	Number of correct answers among											
	34 girls of Standard II.		30 girls of Standard III.		51 girls of Standard IV.		41 girls of Standard V.		20 girls of Standard VI.		16 girls of Standard VII.	
Interrogatory.	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
What sort of a hat was the lady wearing?.....	16	14	12	22	36	36	30	37	19	19	13	16
Had the lady anything else in her hand besides the bread, cake, basin, etc.?	25	24	24	20	45	40	35	38	15	18	15	16
What kind of boots had the boy?.....	3	5	4	5	12	7	11	15	10	10	10	12
What did you see through the open window?	6	7	5	5	17	33	21	29	17	16	11	15
What did you see through the open door?	10	7	8	6	28	35	27	33	16	16	14	13
Did you see a window?	11	10	9	6	26	32	31	33	16	17	15	14
What color was the carpet?	3	10	5	10	27	29	23	34	17	20	12	14
Did you see a carpet?..	10	15	19	19	33	35	35	39	19	20	15	14
Totals.....	84	92	86	93	224	247	213	258	129	136	105	114

TABLE XXIIa.

THE PERCENTAGE OF RESISTANCE TO SUGGESTIBILITY IN GIRLS AT VARIOUS GRADES OF PROFICIENCY, SCHOOL C.

Standard	II.		III.		IV.		V.		VI.		VII.	
Interrogatory	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
Percentage Resistance..	31	34	36	39	55	60	65	78	81	85	82	89
Average	32		37		58		72		83		86	

schools upon the variations in method—the girls wrote their answers, the infants had theirs written for them, and the girls answered their first interrogatory the day after seeing the picture whilst the infants answered theirs immediately afterwards— we must admit a remarkable set-back in the early years of the senior school. There is a regularity about the figures which quite excludes 'chance.' It may be that the definite acquisition of knowledge in reading, writing, arithmetic, and other school studies has tem-

porarily weakened that attitude of inquiry which the growing infant manifests so markedly; it may be an increasing subordination to the teacher which the work of the senior school demands, resulting in an increased suggestibility. Of the causes I am doubtful, but the fact seems clear that it is not until Standard V (with an average age of 11+) is reached that the girls are equal to 5 and 6-year-old children in their power to resist erroneous suggestion. There is one other factor of course; the infants are boys and girls mixed, the girls' department contains girls only. There is one point of complete agreement between the girls and infants; the second week's answers are better than the first.

Let us now turn to the work of the boys of the same school.

The number of boys in the various grades or standards varied considerably not only from each other, but also from the corresponding grades in the girls' departments, so the numbers will be shown in percentages (Table XXIIIa).

The boys compare unfavorably with the infants: the discussion of the causes need not be repeated. There seems the same set-back in the early years of senior-school life. In the early grades the boys are less suggestible than the girls. At Standard IV they are approximately the same, and in later standards the girls show a decided superiority. It is possible, as we have explained already, that the subject-matter may account somewhat for this. But on the other hand the decreased suggestibility may be a part of the more rapid physical and mental growth of the girls at these ages; for, in certain aspects of

TABLE XXIII.

SUGGESTIBILITY OF BOYS (AGED 8 TO 13 YEARS), SCHOOL C.

	Number of correct answers among											
	50 boys of Standard II.		42 boys of Standard III.		41 boys of Standard IV.		33 boys of Standard V.		26 boys of Standard VI.		10 boys of Standard VII.	
Interrogatory.	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
What sort of a hat was the lady wearing?.....	46	47	27	23	28	26	22	28	17	20	8	9
Had the lady anything else in her hand besides what you have told me about?.....	35	43	23	29	29	32	27	27	21	22	9	10
What sort of boots had the boy?.....	13	12	13	9	13	19	9	10	5	10	4	6
What did you see through the open window?	27	22	16	25	19	27	13	17	22	24	7	7
What did you see through the open door?	25	25	18	15	23	19	15	17	16	12	3	3
Did you see a window?	16	22	13	20	24	28	18	14	19	22	7	9
What was the color of the carpet?.....	11	15	20	23	27	27	22	25	22	23	9	8
Did you see a carpet ..	20	24	24	25	31	28	26	27	26	25	9	9
Totals.....	193	210	154	169	194	206	152	165	148	158	56	61

TABLE XXIIIa.

THE PERCENTAGE OF RESISTANCE TO SUGGESTIBILITY IN BOYS AT VARIOUS GRADES OF PROFICIENCY, SCHOOL C.

Standard	II.		III.		IV.		V.		VI.		VII.	
Interrogatory	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
Percentage Resistance..	48	52	46	50	59	63	58	62	71	76	70	76
Average	50		48		61		60		74		73	

mental capacity, girls are decidedly superior to boys at these ages, though inferior in others, such as draftsmanship and the functions of abstract reasoning. We are, of course, comparing boys and girls of the same social grade; without this identity all our conclusions as to the mental differences of boys and girls are exposed to serious error arising from difference in class or social environment.

II. Children's Perceptions of Clothes.

Many of the questions dealing with the clothing of the woman and the boy are of a suggestive nature, sometimes leading to *error* as in the question "What sort of boots had the boy?" In others, such as "Had

TABLE XXIV.

Perceptions of Clothes Among Infants (Aged 3 to 7 Years), School A.

Interrogatory.	Number of correct answers among: 10 boys and girls 3 years old. 1st	2nd	10 boys and girls 4 years old. 1st	2nd	10 boys and girls 5 years old. 1st	2nd	10 boys and girls 6 years old. 1st	2nd	10 boys and girls 7 years old. 1st	2nd
What clothes was the lady wearing?	0	4	4	4	6	6	6	7	9	9
What clothes was the boy wearing?	1	1	1	1	3	4	4	5	4	7
Totals	1	5	5	5	9	10	10	12	13	16
Percentages correct	5	25	25	25	45	50	50	60	65	80
Average percentage	15		25		48		55		73	

TABLE XXV.

Perceptions of Clothes Among Infants (Aged 4 to 7 Years), School B.

Interrogatory.	Number of correct answers among: 10 boys and girls 4 years old. 1st	2nd	10 boys and girls 5 years old. 1st	2nd	10 boys and girls 6 years old. 1st	2nd	10 boys and girls 7 years old. 1st	2nd
What clothes was the lady wearing?	3	5	5	6	5	6	7	6
What clothes was the boy wearing?	6	8	8	9	7	8	9	9
Totals	9	13	13	15	12	14	16	15
Percentages correct	45	65	65	75	60	70	80	75
Average percentage	55		70		65		78	

the lady a frock on?," which assist to re-establish a forgotten percept or act independently of it, the *right* answer is suggested. Two questions as to the clothes are, however, quite free, at least at first, from the influences of suggestion. These questions are "What clothes was the lady wearing?" and "What clothes was the boy wearing?"

TABLE XXVI.

PERCEPTIONS OF CLOTHES AMONG GIRLS (AGED 8 TO 13 YEARS), SCHOOL C.

	Number of correct answers among											
	34 girls of Standard II.		30 girls of Standard III.		51 girls of Standard IV.		41 girls of Standard V.		20 girls of Standard VI.		16 girls of Standard VII.	
Interrogatory.	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
What clothes was the lady wearing?.....	10	11	12	23	32	42	36	39	17	19	16	16
What clothes was the boy wearing?.....	11	20	5	20	25	45	36	40	16	18	16	15
Totals.....	21	31	17	43	57	87	72	79	33	37	32	31
Percentage correct.....	31	45	28	71	56	85	88	96	83	93	100	97
Average percentage.....	38		50		71		92		88		98	

TABLE XXVII.

PERCEPTIONS OF CLOTHES AMONG BOYS (AGED 8 TO 13 YEARS), SCHOOL C.

	Number of correct answers among											
	50 boys of Standard II.		42 boys of Standard III.		41 boys of Standard IV.		33 boys of Standard V.		26 boys of Standard VI.		10 boys of Standard VII.	
Interrogatory.	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
What clothes was the lady wearing?.....	19	16	11	13	20	15	12	10	8	5	7	6
What clothes was the boy wearing?.....	35	34	23	25	21	23	20	26	17	17	8	9
Totals.....	54	50	34	38	41	38	32	36	25	22	15	15
Percentages correct.....	54	50	40	45	50	46	49	55	48	42	75	75
Average percentage.....	52		43		48		52		45		75	

A scrutiny of the foregoing tables shows, as in previous cases, the superiority of the infants of School B to those of School A, which seems considerable in their greater knowledge of the clothes the boy was wearing. The *general* superiority of the answers of the second interrogatory may be due to the suggestive influences of some of the questions which were asked the first week, such as "Had the lady an apron or pinafore on?" and "What color was the boy's coat or jacket?"

In the younger classes of the senior schools there seems, at first, a decline, more marked among the girls than the boys; but the girls show much improvability and definitely surpass the boys in their higher standards. In fact, notwithstanding the influence of the suggestive questions of the first interrogatory, the boys' knowledge of the woman's clothes, poor at first, is *worse* the second week than it was the week before.

The results of Standard III in the girls' department show the peculiarity which I have already commented upon and explained.

III. Children's Perceptions of Position.

The interest attaching to this group of answers is considerable, not only for the closeness of the results for boys and girls and for their general poorness, but as illustrating the advance from one week to the next in a case where no suggestive influence, except of course the stimulation which a question always gives, could arise in consequence of the first week's interrogatory.

TABLE XXVIII.

PERCEPTIONS OF POSITION AMONG INFANTS (AGED 3 TO 7 YEARS), SCHOOL A.

Interrogatory.	Number of correct answers among 10 boys and girls 3 years old. 1st	2nd	10 boys and girls 4 years old. 1st	2nd	10 boys and girls 5 years old. 1st	2nd	10 boys and girls 6 years old. 1st	2nd	10 boys and girls 7 years old. 1st	2nd
Which side of the table was the lady standing?	1	1	4	6	5	6	9	9	8	9
Whereabouts on the table was the knife?	2	2	2	3	6	6	5	6	4	5
Where were the boy's feet?	1	1	5	5	2	3	5	5	5	5
Where was the flower-pot?	4	7	7	9	9	9	8	9	10	10
How was the lady holding the bread or cake or basin, etc.?	0	0	0	0	0	0	0	0	1	1
How was the boy holding what he had in his hand?	0	0	0	1	2	4	3	2	0	0
Totals	8	11	18	24	24	28	30	31	28	30
Percentage correct	13	18	30	40	40	47	50	52	47	50
Average percentage	16		35		43		51		48	

TABLE XXIX.

PERCEPTIONS OF POSITION AMONG INFANTS (AGED 4 TO 7 YEARS), SCHOOL B.

Interrogatory.	Number of correct answers among 10 boys and girls 4 years old. 1st	2nd	10 boys and girls 5 years old. 1st	2nd	10 boys and girls 6 years old. 1st	2nd	10 boys and girls 7 years old. 1st	2nd
Which side of the table was the lady standing?	8	7	10	10	10	10	10	10
Whereabouts on the table was the knife?	5	6	8	8	10	10	8	10
Where were the boy's feet?	1	1	4	4	2	3	5	5
Where was the flower-pot?	9	9	8	9	10	10	10	10
How was the lady holding the bread, or cake, or basin, etc.?	0	0	0	0	0	0	0	0
How was the boy holding what he had in his hand?	0	1	0	0	10	9	5	4
Totals	23	24	30	31	42	42	38	39
Percentage correct	38	40	50	52	70	70	63	65
Average percentage	39		51		70		64	

Comments on Tables XXVIII and XXIX.

The superiority of the children of School B over those of School A is shown at every age. The 4-year-old children of School B (there is no sample of 3-year-old children for this school) obtain 39 per cent. (38 + 40 divided by 2) of correct answers compared with 35 per cent. for School A. The 6-year-old children of School B score 70 per cent., those of School A 51 per cent. The 7-year-old children of School A and B score 48 and 64 per cent., respectively. In this respect, therefore, there is a drop in both schools from the age of 6 to that of 7 years. The advance from the first week to the second is practically invariable.

TABLE XXX.

PERCEPTIONS OF POSITION AMONG GIRLS (AGED 8 TO 13 YEARS), SCHOOL C.

	Number of correct answers among											
	34 girls of Standard II.		30 girls of Standard III.		51 girls of Standard IV.		41 girls of Standard V.		20 girls of Standard VI.		16 girls of Standard VII.	
Interrogatory.	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
Which side of the table was the lady standing?	21	21	14	17	35	42	34	37	18	15	13	15
Whereabouts on the table was the knife?.	26	26	15	23	43	43	35	38	16	16	12	12
Where were the boy's feet?	14	12	15	18	33	34	28	30	10	10	10	10
Where was the flower-pot?	22	26	14	19	33	41	34	38	15	18	14	15
How was the lady holding the bread, cake, basin, etc.?.....	0	1	0	0	0	0	1	1	0	1	0	0
How was the boy holding what he had in his hand?.....	1	1	0	0	0	0	0	1	0	0	4	3
Totals.....	84	87	58	77	144	160	132	145	59	60	53	55
Percentage correct.....	41	42	32	43	47	52	54	59	49	50	55	57
Average percentage.....	42		38		50		56		50		56	

TABLE XXXI.

PERCEPTIONS OF POSITION AMONG BOYS (AGED 8 TO 13 YEARS), SCHOOL C.

	Number of correct answers among											
	50 boys of Standard II.		42 boys of Standard III.		41 boys of Standard IV.		33 boys of Standard V.		26 boys of Standard VI.		10 boys of Standard VII.	
Interrogatory.	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
Which side of the table was the lady standing?	33	39	33	31	34	36	26	27	19	20	9	9
Whereabouts on the table was the knife .	27	31	33	34	28	32	29	28	17	21	8	7
Where were the boy's feet?	27	30	25	28	31	31	20	23	19	23	8	8
Where was the flower-pot?	30	29	31	31	26	30	25	30	21	23	9	10
How was the lady holding the bread, cake, basin, etc.....	0	0	0	0	0	0	0	0	1	0	0	0
How was the boy holding what he had in his hand?.....	0	0	0	0	2	0	1	1	0	0	0	0
Totals.....	117	129	122	124	121	129	101	109	77	87	34	34
Percentage correct.....	39	43	48	49	49	53	51	55	49	56	57	57
Average percentage.....	41		49		51		53		53		57	

Comments on Tables XXX and XXXI

Grade by grade the boys and girls approximate very closely in their perceptions of position; there are, indeed, slight indications here and there that the boys are more accurate than the girls. The results for Standard III class of girls are very inferior; it will be remembered that many of the children in this class looked at the picture to make stories about it rather than to make accurate observations. We see again the characteristic drop in the lower standards of the senior departments as compared with the older infants.

IV. Children's Perceptions of Activities.

Questions concerning the activities of persons represented in the picture rarely fail to receive an answer; errors arise rather from the inference to a previous activity than the neglect of observation, so to speak, of the present activity.

TABLE XXXII.

Perceptions of Actions Among Infants (3 to 7 Years), School A.

	Number of correct answers among									
	10 boys and girls 3 years old.		10 boys and girls 4 years old.		10 boys and girls 5 years old.		10 boys and girls 6 years old.		10 boys and girls 7 years old.	
Interrogatory.	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
What was the lady doing?.....	7	9	9	9	9	9	9	9	9	9
What was the boy doing?.....	7	9	10	10	10	10	10	10	10	10
Totals.....	14	18	19	19	19	19	19	19	19	19
Percentage correct.....	70	90	95	95	95	95	95	95	95	95
Average percentage.....	80		95		95		95		95	

TABLE XXXIII.

Perception of Actions Among Infants (4 to 7 Years), School B.

	Number of correct answers among							
	10 boys and girls 4 years old.		10 boys and girls 5 years old.		10 boys and girls 6 years old.		10 boys and girls 7 years old.	
Interrogatory.	1st	2nd	1st	2nd	1st	2nd	1st	2nd
What was the lady doing?.....	10	10	9	9	10	10	10	10
What was the boy doing?.....	10	10	10	10	10	10	10	10
Totals.....	20	20	19	19	20	20	20	20
Percentage correct.....	100	100	95	95	100	100	100	100
Average percentage.....	100		95		100		100	

TABLE XXXIV.

PERCEPTIONS OF ACTIONS AMONG GIRLS (8 TO 13 YEARS), SCHOOL C.

	Number of correct answers among											
	34 girls of Standard II.		30 girls of Standard III.		51 girls of Standard IV.		41 girls of Standard V.		20 girls of Standard VI.		16 girls of Standard VII.	
Interrogatory.	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
What was the lady doing?	24	23	21	22	36	38	31	31	13	15	14	14
What was the boy doing?	34	32	24	26	44	45	40	39	19	20	14	16
Totals	58	55	45	48	80	83	71	70	32	35	28	30
Percentage correct	85	81	75	80	78	81	87	85	80	87	88	94
Average percentage	83		78		80		86		84		91	

TABLE XXXV.

PERCEPTIONS OF ACTIONS AMONG BOYS (8 TO 13 YEARS), SCHOOL C.

	Number of correct answers among											
	50 boys of Standard II.		42 boys of Standard III.		41 boys of Standard IV.		33 boys of Standard V.		26 boys of Standard VI.		10 boys of Standard VII.	
Interrogatory.	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
What was the lady doing?	31	24	18	23	21	29	24	23	18	23	9	10
What was the boy doing	41	44	36	42	40	38	32	31	25	25	10	10
Totals	72	68	54	65	61	67	56	54	43	48	19	20
Percentage correct	72	68	64	77	74	82	85	82	83	92	95	100
Average percentage	70		71		78		83		88		98	

TABLE XXXVI.

PERCEPTIONS OF THINGS AMONG INFANTS (3 TO 7 YEARS), SCHOOL A.

Interrogatory.	Number of correct answers among: 10 boys and girls 3 years old. 1st	2nd	10 boys and girls 4 years old. 1st	2nd	10 boys and girls 5 years old. 1st	2nd	10 boys and girls 6 years old. 1st	2nd	10 boys and girls 7 years old. 1st	2nd
What else was on the table besides the thing the lady was holding?	1	1	1	4	4	8	7	9	9	9
Did you see anything under the boy's chair?	2	5	6	7	7	9	3	4	8	9
Did you see anything on the floor near the jug, and if you did, what was it?	2	2	8	8	10	10	10	10	9	9
Totals	5	8	15	19	21	27	20	23	26	27
Percentage correct	17	27	50	63	70	90	67	77	87	90
Average percentage	22		57		80		72		88	

TABLE XXXVII.

PERCEPTIONS OF THINGS AMONG INFANTS (4 TO 7 YEARS), SCHOOL B.

Interrogatory.	Number of correct answers among: 10 boys and girls 4 years old. 1st	2nd	10 boys and girls 5 years old. 1st	2nd	10 boys and girls 6 years old. 1st	2nd	10 boys and girls 7 years old. 1st	2nd
What else was there on the table besides the thing the lady was holding?	1	5	4	8	8	10	6	10
Did you see anything under the boy's chair?	4	6	4	6	4	5	6	7
Did you see anything on the floor near the jug, and if you did, what was it?	8	8	7	7	9	9	7	7
Totals	13	19	15	21	21	24	19	24
Percentage correct	43	63	50	70	70	80	63	80
Average percentage	53		60		75		72	

Comments on Tables XXXII, XXXIII, XXXIV and XXXV.

So far as the observation of simple activities are concerned, it is extremely doubtful whether, during school-life, there is any evolution at all.

V. Children's Perceptions of Things.

It is well known that children observe and indicate 'persons' before 'things,' and also that the enumeration of things is a very early stage in the evolution of perception; it is indeed marked among children of 3 years of age. But there are certain things represented in the picture that are by no means obvious, such, for instance, as the knife on the table, the vase under the boy's chair, and the satchel on the floor close by. Other questions relating to the observation of things in the picture contain a large element of suggestion and have been excluded from the following tables.

Comments on Tables XXXVI, XXXVII, XXXVIII and XXXIX.

The older infants score heavily as compared with the boys and girls, and the comparison between the boys and the girls themselves seems to show no definite and continuous differences. The abler children soon become aware that they had more than once been questioned about non-existent things; there was therefore a slight tendency among them to answer these questions in the negative. A vivid memory of the knife, jug and satchel doubtless overcame this tendency, but dubious memories would not overcome it.

TABLE XXXVIII.

PERCEPTIONS OF THINGS AMONG GIRLS (8 TO 13 YEARS), SCHOOL C.

Interrogatory.	Number of correct answers among: 34 girls of Standard II. 1st	2nd	30 girls of Standard III. 1st	2nd	51 girls of Standard IV. 1st	2nd	41 girls of Standard V. 1st	2nd	20 girls of Standard VI. 1st	2nd	16 girls of Standard VII. 1st	2nd
What else was there on the table besides the thing the lady was holding?	12	23	17	23	38	44	29	38	16	16	12	12
Did you see anything under the boy's chair?	17	18	18	23	30	29	18	20	11	10	7	6
Did you see anything on the floor near the jug, and if you did, what was it?.....	20	20	22	21	39	33	28	29	14	17	9	10
Totals.....	49	61	57	67	107	106	75	87	41	43	28	28
Percentage correct.....	48	60	63	74	70	69	61	71	68	72	58	58
Average percentage.....	54		69		70		66		70		58	

TABLE XXXIX.

PERCEPTIONS OF THINGS AMONG BOYS (8 TO 13 YEARS), SCHOOL C.

Interrogatory.	Number of correct answers among: 50 boys of Standard II. 1st	2nd	42 boys of Standard III. 1st	2nd	41 boys of Standard IV. 1st	2nd	33 boys of Standard V. 1st	2nd	26 boys of Standard VI. 1st	2nd	10 boys of Standard VII. 1st	2nd
What else was there on the table besides the thing the lady was holding?	26	26	28	34	26	33	27	30	16	20	7	7
Did you see anything under the boy's chair?	15	22	19	30	27	28	17	24	17	18	6	6
Did you see anything on the floor near the jug, and if you did, what was it?.....	17	15	25	31	35	35	21	25	18	20	10	7
Totals.....	58	63	72	95	88	96	65	79	51	58	23	20
Percentage correct.....	39	42	57	75	72	78	66	80	65	74	77	67
Average percentage.....	40		66		75		73		70		72	

VI. Children's Perceptions of Number.

There are two questions dealing with number, the one relating to the number of flowers, the other to the number of leaves. It may be of interest and value to note how far, if at all, the spontaneous interest in, and perception of, mere number appears to develop.

TABLE XL.

Perceptions of Number Among Infants (3 to 7 Years), School A.

	Number of correct answers among									
	10 boys and girls 3 years old.		10 boys and girls 4 years old.		10 boys and girls 5 years old.		10 boys and girls 6 years old.		10 boys and girls 7 years old.	
Interrogatory.	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
How many flowers were there?..	4	2	1	2	2	2	5	5	3	3
How many leaves were there?...	0	0	0	0	0	0	0	0	0	0
Totals.....	4	2	1	2	2	2	5	5	3	3
Percentage correct.....	20	10	5	10	10	10	25	25	15	15
Average percentage.....	15		7.5		10		25		15	

TABLE XLI.

Perceptions of Number Among Infants (4 to 7 Years), School B.

	Number of correct answers among							
	10 boys and girls 4 years old.		10 boys and girls 5 years old.		10 boys and girls 6 years old.		10 boys and girls 7 years old.	
Interrogatory.	1st	2nd	1st	2nd	1st	2nd	1st	2nd
How many flowers were there?.....	5	6	4	4	3	2	4	4
How many leaves were there?.....	0	0	0	0	0	0	0	0
Totals.....	5	6	4	4	3	2	4	4
Percentage correct.....	25	30	20	20	15	10	20	20
Average percentage.....	28		20		13		20	

TABLE XLII.

PERCEPTIONS OF NUMBER AMONG GIRLS (8 TO 13 YEARS), SCHOOL C.

	Number of correct answers among											
	34 girls of Standard II.		30 girls of Standard III.		51 girls of Standard IV.		41 girls of Standard V.		20 girls of Standard VI.		16 girls of Standard VII.	
Interrogatory.	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
How many flowers were there?	7	6	9	9	12	12	12	11	10	8	0	2
How many leaves were there?	0	2	1	0	2	1	1	1	3	0	0	0
Totals	7	8	10	9	14	13	13	12	13	8	0	2
Percentage correct	10	12	16	15	13	12	16	15	32	20	0	6
Average percentage	11		16		13		15		26		3	

TABLE XLIII.

PERCEPTIONS OF NUMBER AMONG BOYS (8 TO 13 YEARS), SCHOOL C.

	Number of correct answers among											
	50 boys of Standard II.		42 boys of Standard III.		41 boys of Standard IV.		33 boys of Standard V.		26 boys of Standard VI.		10 boys of Standard VII.	
Interrogatory.	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
How many flowers were there?	11	8	15	13	10	6	12	13	5	10	7	4
How many leaves were there?	0	0	3	2	0	5	1	2	1	0	0	1
Totals	11	8	18	15	10	11	13	15	6	10	7	5
Percentage correct	11	8	21	18	12	13	20	23	12	19	35	25
Average percentage	10		20		13		21		15		30	

Comments on Tables XL, XLI, XLII and XLIII.

The spontaneous interest in number is small and shows no appreciable or steady development. It is of considerable importance in connection with this weakness that the second week's results are *not* better than those of the week before. The children notice the numbers but little and, compared with their other memories, forget them easily.

TABLE XLIV.

PERCEPTIONS OF COLOR AMONG INFANTS (3 TO 7 YEARS), SCHOOL A.

	Number of correct answers among									
	10 boys and girls 3 years old.		10 boys and girls 4 years old.		10 boys and girls 5 years old.		10 boys and girls 6 years old.		10 boys and girls 7 years old.	
Interrogatory.	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
What color was (or were)—										
The lady's blouse (or the top part of her frock)?	3	3	2	2	4	5	7	8	7	7
The lady's skirt (or the bottom part of her frock)?	4	4	6	3	5	4	5	7	6	7
The lady's apron or pinafore?	3	3	4	5	3	3	6	7	5	4
The lady's boots or shoes?	2	6	7	7	7	7	8	9	6	5
The lady's hair?	0	0	2	3	5	4	4	5	7	7
The boy's coat or jacket?	1	1	0	0	1	1	2	1	2	2
The boy's knickers or trousers?	0	1	1	1	1	1	2	3	3	3
The boy's boots or shoes?	3	5	8	7	8	9	8	8	7	7
The boy's stockings?	3	2	3	2	0	1	2	1	4	3
The boy's hair?	2	2	1	1	5	5	4	5	6	6
The table?	0	0	1	1	1	2	3	2	6	6
The knife?	0	0	3	4	7	8	9	9	8	8
The flowers?	3	3	6	9	10	10	10	10	10	10
The leaves?	2	2	8	8	9	9	10	10	10	10
The flower-pot	2	2	9	9	9	9	10	10	9	9
The box?	0	0	0	2	7	6	6	6	9	9
The jug or vase?	0	0	0	1	3	2	2	2	4	4
The walls of the room?	2	3	0	0	0	0	2	2	2	3
Totals	30	37	61	65	85	86	100	105	111	110
Percentage correct	17	20	34	36	47	48	55	58	61	61
Average percentage	19		35		48		56		62	

VII. Children's Perceptions of Color.

Even a comparatively unobservant reader can scarcely have failed to note, from time to time, how very little attention children seem to have given to the colors in the picture, even though, in many cases, the objects are purposely colored in such an unusual way as to arrest attention. As one child said during her self-correction, "Isn't the boy dressed funny? If I saw him coming along the street like that, I should laugh." Yet in her interrogatories, this

TABLE XLV.

Perceptions of Color Among Infants (4 to 7 Years), School B.

Interrogatory.	Number of correct answers among 10 boys and girls 4 years old. 1st	2nd	10 boys and girls 5 years old. 1st	2nd	10 boys and girls 6 years old. 1st	2nd	10 boys and girls 7 years old. 1st	2nd
What color was (or were)—								
The lady's blouse (or the top part of her frock)?	2	1	4	6	4	5	6	6
The lady's skirt (or the bottom part of her frock)?	1	3	7	5	7	4	7	5
The lady's apron or pinafore?	2	1	5	5	4	5	6	5
The lady's boots or shoes?	4	5	9	10	5	7	3	2
The lady's hair?	4	5	4	5	7	9	9	10
The boy's coat or jacket?	1	1	1	1	3	2	1	1
The boy's knickers or trousers?	0	1	2	1	2	2	2	2
The boy's boots or shoes?	5	6	9	10	5	6	7	7
The boy's stockings?	0	0	1	1	1	0	3	4
The boy's hair?	5	7	5	7	10	9	10	8
The table?	4	5	6	6	8	8	10	10
The knife?	2	4	1	4	10	10	8	10
The flowers?	7	8	8	9	8	9	10	10
The leaves?	9	9	9	9	10	10	10	10
The flower-pot?	7	7	7	7	9	10	10	8
The box?	1	4	5	7	8	8	9	9
The jug or vase?	2	3	4	2	2	2	4	2
The walls of the room?	0	0	3	4	6	4	5	4
Totals	56	70	90	99	109	110	120	113
Percentage correct	31	39	50	55	61	61	67	63
Average percentage	35		53		61		65	

child had dressed the boy gravely in grays and blues. If children are fond of colored pictures, as doubtless they are, the coloring must be rather a source of emotional than of intellectual satisfaction. The elder girls, however, as will be seen from the tables, show much more capacity and have given a high percentage of accurate answers.

TABLE XLVI.

PERCEPTIONS OF COLOR AMONG GIRLS (8 TO 13 YEARS), SCHOOL C.

	Number of correct answers among											
	34 girls of Standard II.		30 girls of Standard III.		51 girls of Standard IV.		41 girls of Standard V.		20 girls of Standard VI.		16 girls of Standard VII.	
Interrogatory.	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
What color was (or were)—												
The lady's blouse (or the top part of her frock)?	16	18	18	19	31	33	38	36	19	18	16	16
The lady's skirt (or the bottom part of her frock)?	12	15	20	16	31	32	37	35	18	18	16	15
The lady's apron or pinafore?	7	7	11	11	18	17	26	29	17	14	15	16
The lady's boots or shoes?	29	22	24	22	37	33	34	31	7	5	13	12
The lady's hair?	12	14	16	17	34	32	35	36	17	19	13	13
The boy's coat or jacket?	3	4	6	8	10	10	24	18	8	6	6	7
The boy's knickers or trousers?	4	4	2	3	18	15	16	16	9	6	3	2
The boy's boots or shoes?	27	24	23	11	38	30	31	34	15	13	15	15
The boy's stockings?	6	2	4	3	12	11	9	9	11	9	6	6
The boy's hair?	18	21	14	17	33	35	33	36	15	17	14	14
The table?	30	28	24	24	47	50	36	41	20	18	14	16
The knife?	15	17	14	18	30	26	24	22	8	12	10	8
The flowers?	24	26	27	23	43	42	39	40	18	19	15	16
The leaves?	34	33	26	27	48	45	34	39	20	20	15	16
The flower-pot?	29	29	28	29	42	41	35	37	19	18	11	13
The box?	23	26	20	23	38	34	31	34	15	17	14	13
The jug or vase?	5	4	7	8	9	11	14	13	7	7	2	3
The walls of the room?	6	4	3	7	8	10	20	20	7	8	12	11
Totals	300	298	287	286	527	507	516	526	250	244	210	212
Percentage correct	49	49	53	53	57	55	70	71	69	68	73	74
Average percentage	49		53		56		71		69		73	

TABLE XLVII.

PERCEPTIONS OF COLOR AMONG BOYS (8 TO 13 YEARS), SCHOOL C.

Interrogatory.	Number of correct answers among: 50 boys of Standard II. 1st	50 boys of Standard II. 2nd	42 boys of Standard III. 1st	42 boys of Standard III. 2nd	41 boys of Standard IV. 1st	41 boys of Standard IV. 2nd	33 boys of Standard V. 1st	33 boys of Standard V. 2nd	26 boys of Standard VI. 1st	26 boys of Standard VI. 2nd	10 boys of Standard VII. 1st	10 boys of Standard VII. 2nd
What color was (or were)—												
The lady's blouse (or the top part of her frock)?	23	17	11	11	11	11	18	18	6	7	4	5
The lady's skirt (or the bottom part of her frock)?	13	18	9	15	9	13	22	21	12	9	5	4
The lady's apron or pinafore?	3	5	8	8	9	7	9	11	4	3	2	0
The lady's boots or shoes?	46	35	37	33	28	28	23	26	14	11	7	6
The lady's hair?	22	23	19	20	34	23	22	26	17	23	5	7
The boy's coat or jacket?	16	17	8	9	6	5	3	5	3	3	2	1
The boy's knickers or trousers?	6	4	2	6	7	8	4	5	5	4	1	1
The boy's boots or shoes?	38	42	31	38	33	34	24	24	14	20	8	8
The boy's stockings?	6	11	3	4	1	3	5	5	6	7	5	3
The boy's hair?	30	29	18	16	26	26	27	24	21	18	5	6
The table?	42	37	33	34	36	38	30	30	22	21	7	10
The knife?	32	24	30	35	22	27	19	19	16	17	5	5
The flowers?	34	36	34	33	30	32	28	30	23	23	8	9
The leaves?	37	43	39	39	38	38	30	29	25	25	10	10
The flower-pot?	40	44	33	36	37	35	29	30	24	26	9	10
The box?	30	33	32	33	25	33	29	30	24	23	9	9
The jug or vase?	5	5	10	8	6	4	7	7	8	6	1	2
The walls of the room?	9	6	10	7	7	7	8	10	9	10	2	2
Totals	432	429	367	385	365	372	337	350	253	256	95	98
Percentage correct	48	48	49	51	49	50	57	59	54	55	53	54
Average percentage	48		50		50		58		54		54	

Comments on Tables XLIV, XLV, XLVI and XLVII.

Though the colors of the things in the picture do not appear to have been very accurately perceived, except among the highest classes in the girls' school, yet there seems no falling off in accuracy from the first week to the second. The questions of the first

interrogatory have no suggestive influence on the colors, so that we cannot attribute the second week's superiority to suggestion. The children did not know they were ever to be asked about the picture again, so that we can only attribute the accuracy of their memory, indeed their gain in memory, if we may so speak, to their own activity in perception, and to the immediate effort to remember to which the questions of the first week acted as a stimulation. It would appear likely, with children as with adults, that the influence of a question by no means ceases when an attempt has been made to answer it.

The infants of the younger ages, 3 and 4 years, show very little power of perceiving and remembering colors; but of course the *naming* of the colors, apart from their perception, forms a real difficulty to many of these children. The 6-year-old and 7-year-old children do rather well. There is a drop shown by the 8-year-old children of the senior schools and the boys subsequently remain at a low level throughout the grades. The girls, however, show considerable improvement and, in the higher classes, answer much more accurately. There appears to be a steady sex difference in favor of the girls. A comparison between the two infant schools (School A and School B) shows a steady superiority, age for age, in favor of the school whose children are better-born and more favorably situated as to home environment.

VIII. Validity of This Method of Tracing the Child's Perceptual Evolution.

I have postponed any discussion as to the validity of this *Aussage* method until the reader has had an opportunity of studying the results. But it now seems worth while to give some consideration to it. Obviously, we have by this method a way of presenting things to children as they appear in a concrete situation, and we trace the development of perception under those conditions which are, in fact, the conditions to be found in actual life. For many psychological purposes, we must undoubtedly use the highly artificial arrangements of the laboratory: I am by no means unmindful of the need for such work. But there is always a risk in artificializing a process, that the conclusions from the results will not really apply to the actual work of life and school, though they may appear to do so at first sight. The method adopted in this research escapes this difficulty. There is, however, a limitation to our conclusions, regarded psychologically. For example, we may not say that, because boys do not notice colors accurately, and show little or no improvement in this work throughout their school life, color discrimination does not improve in boys from the ages of 8 to 14 years. It *may* not, but other methods would have to be employed to demonstrate such a contention. We are entitled only to conclude that, when capacity and interest are considered jointly and working together, no such improvement takes place. And the conclusions are subject to a further condition. They are true under certain pedagogical conditions prevalent in elementary schools in Eng-

land at the date of the experiment. Timeless or eternal truth may be very true; it is usually also very useless; we must, and I think ought to be satisfied to get truth applicable to the conditions of practice; and the contention is that many such truths have been obtained.

IX. Pedagogical Value of the Method.

We are rapidly moving away from the days in which it was supposed that the psychologist, being a clever fellow who knew all about the mind, could sit down in his study and excogitate general directions for the use of schools and teachers. The psychologist is needed as much, indeed, more than ever (he is, in fact, being asked for by the teachers themselves, even in England); but his work will no longer mainly consist in writing Psychology for Teachers. Every now and then, some capable person who knows both psychology and education must make a summary of the ascertained knowledge which interrelates the two fields of inquiry. But this will be, so to speak, a bye-product. The actual work of educational psychology will be done experimentally in the schools (with reference to the laboratory for disputed theoretical points), and will be done with the ready aid and cordial support of the teachers. *But the work must be so arranged that its methods and conclusions are clear to the teachers who help.* If this is done, we shall hear no more of the teacher's antagonism to psychology. He will, and she will (I am writing in England and cannot give *place aux dames*) become its most faithful adherent and advo-

cate. Some rather important corrollaries will follow. Books dealing with children's ways and with method in schools will (some day) cease asserting as mere guesswork that this or that mental function is within the capacity of children or lies within the track of their interests, and will base their statements upon ascertained fact. Unhappily, these facts cost time, knowledge, and industry to collect, and the number of persons ready to spend private means in making this knowledge will always be small and cannot safely be relied on. Meanwhile, guess-work will go on whenever there is no real knowledge available. Unfortunately, it will go on for some time after there is.

CHAPTER VII.

WAS IT THE SAME PICTURE WHICH WAS SHOWN THE SECOND TIME?

We have seen how almost invariably the work of the second week has proved itself to be superior to that of the week before, even though the picture has been quite inaccessible in the meantime.* Moreover, the children did not know that they were ever to write about it or be questioned about it again. Yet, with no chance of renewing their original perceptions, and with no extraneous motive for remembrance, they were quite clearly more accurate the second week than the first. This increase of accuracy in memory after a lapse of time is often, and probably rightly, explained by recovery from fatigue. The original perception is often too protracted; and immediately-tested memories show poor results. A few days later, when the fatigue due to the original effort to learn has passed away, the memory of what has been learnt is clearer, easier and more accurate. Have we similar phenomenon in this *Aussage* work, and is it due to the same cause? A similar phenome-

*This picture, *Das Frühstück Bild*, had not previously been used in England; and, with the exception of, perhaps, a few copies of Stern's 'Erinnerung' and of an issue of the *Zeitschrift für Experimentelle Pädagogik* containing the picture, to be found in the university centres, there were no copies of it in the country.

non we certainly appear to have; but it seems hard to attribute it to the same cause; unless we are prepared to admit that the one minute's observation of the picture on which both reports and interrogatories rest—an observation, moreover, unguided and unstimulated by any expectation of examination after a long interval—was, in itself, productive of fatigue. It has been suggested that both the free reporting and the answering of questions have had a fixing and clarifying influence. It is certain that the child knows more about the picture afterwards and knows it better than he did at first. So that this suggestion seems, indeed, to be a merely conservative conclusion from the facts; unless there is some other *general* factor which may account for the improvement. It has sometimes been asserted by some of those to whom I have lectured on the subject that the difference between the work of the first week and that of the second week is not due to any psychological factor at all, but simply to the likelihood that, during the interval between the reports and interrogatories of the first week and those of the second week, the children, or some of them, have communicated with each other. I am quite willing to allow the good pedagogical condition of most of the schools in which the experiment was conducted; I am willing to admit the general interest of the children in their work; but I can only say that, if the boys and girls discussed their school-work in play-time and out of school-hours, these schools were the fortunate possessors of a type of school-child not very common in London. I am prepared to admit that the novelty of the exercise may have somewhat removed the *Aussage* work from the

daily round and the common task; and therefore I should not like to assert that *no* child mentioned this work to any other child during the week's interval between the tests. Let us suppose, therefore, that it is, in certain circumstances, a possibility; and then let us ask, in those circumstances, had such communication occurred, what effect would it have had on the results? For first of all, we know that at one point in the procedure, namely, *after* the second observation, some of the older boys and girls did discuss the picture among themselves when the question was raised as to the identity of the second picture with the first. In this doubtful issue there was, of course, something to argue about, something on which they differed among themselves, some thesis on which they could hang their assertions and denials. Moreover it took place at the close of the procedure. Was there communication during the interval between the reports? First, let us deal with facts of observation and then with the possibilities or likelihood of the alleged communication between the children working the experiment. In the first place, no child was observed during the interval in communication with another on the subject. It would seem certain, therefore, that there could scarcely have been any general communication. But there might have been *some* communication here and there. Well, as far as the infant schools, Schools A and B, were concerned and as far as the senior schools, Schools D, E, F, and C,* where the children were individually examined in sample and orally, even this partial communication was very unlikely. For the exercises, especially in the infant schools, were spread over several months,

*See page 222 et seq.

and a child had often completed all his work weeks before another child, also of the same class, was called upon to do it, and very few children of the *same* class did it at all. In the case of School C, boys and girls, where the children of the same class all answered in writing, all at one time, we cannot say that no communication occurred between any of the pupils. We have to remember that they did not know that they were ever again to be called on to describe the picture. But let us suppose that some of them had communicated, no one who knows school-children will accept for a moment the hypothesis that all of them had done so. Let us suppose, I say, that some of them had, and let us suppose, and this is a big supposition, that the communication was always advantageous to all parties concerned. Is this the common factor we are seeking which produces the general improvement from one week to the next? The figures themselves enable us to answer in the negative. For if some of the children had profited by some extraneous factor unknown among the others, these children would have 'jumped up' in the lists over the others the second week, and the high positive correlations actually found between the results of the first week and those of the second week would have been much reduced. One further point; all the children at School C, both boys and girls, were thoroughly accustomed to writing both in cursive English composition and in answering questions, so that practice in these factors may be practically ruled out.*

I reject, therefore, the supposition that the improvement is due to communication between the children and again suggest that it is due to the effort of

*The relevant figures are given in a statistical summary on p. 241.

reporting and the effort of answering and trying to answer the questions of the first interrogatory.

Is there, then, nothing to be said for those who tell us that to examine on imperfectly known material may be an incitement to error; for error, as well as truth, may be 'fixed' thereby. Quantitatively, their objection is quite overborne. Practically, we may be quite sure that we are doing well to insist on production and reproduction, even of material imperfectly known; but there *is* a tendency to fix the erroneous as well as the true; though, fortunately for us, it is, on the whole, a weaker tendency.

Once or twice in the course of the individual self-corrections it had become apparent that the child was doubtful whether he was really looking at the same picture as before or at a different one; and in the Girls' department of School C, after the self-corrections were over, the girls were asked, class by class, whether they thought the picture shown the second time was the same as that which they had seen the week before. There were some in every class who did not; but the numbers were very few until the upper classes were reached. In Standards VI and VII (girls of 12 and 13 years of age) there was a decided majority in favor of the opinion that the picture was not the same. They had, of course, corrected their previous work on the basis of the assumption that the picture *was* the same, for that was what they had been required to do. Notwithstanding this, 23 out of 34 girls said that they thought it was *not* the same picture. These girls had been encouraged to bring their intellectual difficulties to their Head Mistress, and several of them

came afterwards, one by one, and spoke to her about it. One girl said she was quite certain that in the first picture the boy was sitting round the corner of the table, with both elbows resting on it. Another said it was a different picture because there was a brown flower-pot in the first and a red one in the second. A third was quite sure that the lady's dress was yellow before and the boy's coat, too. Another said "It looks like the same things, but they are not so spread out this time." A fifth girl said "The woman was in front before; the leaves were a darker green and the dabs of black were on the flowers not on the leaves." Another thought that there were two pictures, copies of the same things, slightly differently arranged. Yet another said that the back of the picture had been altered; there was no wall before on the *right-hand* side. On the basis of these notes should we be wrong in attributing the errors of identification almost wholly to mistakes in positional references and in color? If this be the case, the error appears to arise just in those cases where the questioning is least effectual in interrelating the answers. There is a fixation of error, but it appears to be largely a fixation of an emotional kind produced by mere repetition.

So much for the girls, but what of the boys? Boys are more obstinate than girls—though the relation of the sexes in this respect is asserted to be different later in life! What did the boys say? It was quite clear that the upper classes of the boys' school did not believe it was the same picture. By an overwhelming majority the 'Noes' had it. The Head Master was a man whom the boys respected—a re-

spect with its due ingredient of fear. He told them authoritatively that it *was* the same picture, and then said "Now boys, do you believe it?" "No, Sir," they shouted, much to his disgust, though he saw subsequently that to change their conviction merely on his assertion would not have been the most complimentary consequence of his teaching. Of individual records of boy's opinions I have none, but some of the boys were heard subsequently discussing the question, and were unostentatiously observed. Truth, alas! represented by only one boy (not of a forceful nature) went down ingloriously. Four or five of the boys had points of dissimilarity to insist upon and with interjectional addresses of 'Fool' and 'Silly Ass,' they held triumphant debate with the sole advocate of identity, and silenced him. I do not suppose he was convinced, except perhaps of the rashness of trying to persuade a crowd of its own folly. Boys might be convinced if they were allowed to keep the picture themselves in sealed envelopes. Breaking the seals at a given time, they could make a 'self-correction' from which all possibility of doubt would be removed. I suggest this as a useful variant in the method by which the above exercises were given.

CHAPTER VIII.

HOW FAR IS THE RELATIVE INFERIORITY OF THE OLDER CHILDREN DUE TO DIFFERENCES IN THE METHOD OF REPORTING?

FIFTH, SIXTH, SEVENTH AND EIGHTH SERIES OF EXPERIMENTS.

It will be remembered that the infant-school children (Schools A and B), from 3 to 7 years of age, had given their reports, interrogatories and self-corrections orally, whilst the boys and girls of School C, children from 8 to 13 years of age, had given theirs in writing.

It would be commonly supposed, especially with the younger children, that the actual difficulty of penmanship would have a serious effect upon the *length* and *accuracy* of their reports, especially upon their length; and that even their answers to the questions of the interrogatories would be less accurate, if they were compelled to write their answers, than if they were allowed to express themselves by word of mouth. It might, therefore, fairly be held that, whereas the methods employed in this research enable us to come to correct conclusions concerning the relative powers of boys and girls from 8 up to 14 years of age, no conclusions can properly be ar-

rived at about the comparative capacities of the boys and girls and younger children, namely, those from 3 up to 8 years of age.

As one important generalization from this research declares the relative inferiority of boys and girls in the lower classes of senior departments as compared with older infants—children of 6 and 7 years of age—, it seems necessary to try some fair samples of boys and girls in typical schools *by exactly the same procedure* as that which was adopted in the infants' schools. The generalization may otherwise be disputed on the score of difference in method. This new step was not easy to take, for the work, done orally, takes an enormous amount of time. Each child works for 20 minutes or more on each occasion, indeed, for considerably longer on the second occasion, because the 'Self-Correction' is taken then. The writing of the reports and answers at the speed required is fatiguing to the experimenter, and not less than half-an-hour is occupied by the marking of each of the papers, the 'Self-Corrections' especially requiring great care, and constant references back to the 'Reports' and 'Interrogatories.' And only trained observers or examiners can hope to get the reports and answers free from the personal influence of the experimenter. In each school where the work was done about one-third of the reports, answers, etc., were received by me personally, the others were given to a member of the staff, in all cases but one, to the Head Teacher. In every instance the teacher assisting in the experiment had had some years of experience of practical work in experimental pedagogy.

As it was the inferiority of the boys rather than of the girls that was so marked, I determined that the great bulk of this oral work should be done in boys' schools, and that I would take one girls' school only, the school in which the work had been done originally, for it would, I knew, be possible to get a fair sample of 8-year-old children who had not been in the school when the experiment had been previously carried out. The boys' schools I selected were quite new to the work and situated very variously. I obtained fair samples of 8-and 12-year-old children from (*a*) an excellently placed suburban school, attended by well-grown intelligent children, (*b*) a 'slum' school, not of the worst type, in the south-east of London, and a fair sample of 8-and 9-year-old children from (*c*) a 'slum' school, also not of the worst type, but attended solely by the children of Jewish aliens. The well-placed suburban school was regarded as being in a high state of pedagogical efficiency, but both the 'slum' schools had been under a cloud from which, however, they were now decidedly emerging, one rapidly, the other more slowly. The girls' school—School C—was rather well placed and was pedagogically efficient; but I am afraid my figures for the oral work of the 8-year-old children of this school are of little value, except pedagogically, for in the period intervening between the first set of experiments—the written ones—and those now to be recounted—the oral ones—the infants' department of School C had done rather more work with pictures than before, so that in the oral work of the girls we may have a pedagogical factor of some magnitude. In one other case, with two of

the boys in one school, I discovered a direct and positive pedagogical influence; in another case I found an indirect and negative one, which I will point out in their respective places. The 'fair samples' were selected in all cases in the way described in the section on infant-school work.

I. The Work of School D.

This was a 'slum' school attended by English children in the south-east of London. I do not propose to give at present any individual specimens of their work, though I may publish some of the *dossiers* later. I shall give merely the average marks of the age-groups, sectionized in standards or classes. Standard I is the lowest class of the senior school and might be described as first school year.

TABLE XLVIII.

Summarized Results from the Work of Eight-Year-Old Children, School D.

Standard.	No. of boys.	Average Age. Yrs.	Mths.	First Report.	First Interrogatory.	Second Report.	Second Interrogatory. c	Self-Corrections.
I	3	8	4.3	31.0	29.0	31.3	28.7	9.3
II	7	8	6.9	25.4	27.7	36.2	26.8	8.5
Both	10	8	6.9	27.1	28.0	34.8	27.4	8.8
M. V.....				4.5	3.2	6.4	3.5	2.2

Comments on Tables XLVIII and XLIX.

Let us first compare this work with that of the 8-year-old children and 12-year-old children of School C.* If the samples are fair ones of the chil-

*See pages 141, 163.

TABLE XLIX.

SUMMARIZED RESULTS FROM THE WORK OF TWELVE-YEAR-OLD CHILDREN, SCHOOL D.

Standard.	No. of boys.	Average Age. Yrs.	Mths.	First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Corrections.
II	1	12	11.0	27.0	26.0	45.0	23.0	11.0
III	1	12	7.0	20.0	26.0	24.0	25.0	11.0
IV	3	12	5.3	20.7	28.0	26.0	28.3	5.3
V	1	12	2.0	44.0	35.0	50.0	34.0	9.0
VI	2	12	8.0	32.5	32.0	35.0	29.5	10.5
VII	2	12	7.5	51.5	38.0	70.5	39.0	6.0
All Standards.	10	12	6.7	32.1	31.1	40.8	30.4	8.0
M. V.				10.9	4.3	14.6	4.8	2.4

dren of School D, we are undoubtedly entitled to conclude that the children of this school, unless the difference in method of reporting, etc., is a considerable factor, are more proficient in the functions measured than those of School C. Most teachers would, I am sure, be inclined to believe that the children of School D are less proficient than those of School C, but that the former have been favored by the 'oral' as opposed to the 'graphic' method.

Comparing the 12-year-old children of School D and School C, we find the figures running extremely closely together. Unhappily, however, the figures for the two Standard VII boys of School D are largely pedagogical results, for the teacher of this class had long been in the habit of teaching much of his history and geography by means of carefully elicited descriptions of pictures. Making allowance for this factor, we can have little doubt that the 12-year-old children of School D, though favored (it will be thought) by an oral method, are naturally

inferior to those of School C in the functions measured in these experiments. Both of School D as well as of School C the boys are inferior to the older infants of Schools A and B. But School D is a 'slum' school and though, like the infants, the boys did the work orally, the 'slum' factor needs eliminating. It ought to be remembered that of the two infants' schools, School A was similarly situated socially, though in quite a different part of London, and School D is, as I have said, not regarded, at present, as at the height of pedagogical proficiency. So let us take the work of a boys' school extremely well placed geographically and distinguished pedagogically.

One point of extreme importance must be noted: the children of School D, though improving from one week to the other in their power to report, *fall* a little in their interrogatories. This result is almost unique, and I attribute it to 'poor memory,' whether congenital, the result of poor home environment, or of a pedagogical factor, I am unable to say. I think all these factors operate, but incline to attach most weight to the first named. The teachers of schools in poor neighborhoods say that their children, though receptive to easy things, soon forget even them. The experimental work which I have done from time to time in 'slum' schools tends in some measure to support that contention.

II. The Work of School E.

School E, situated in a good suburban neighborhood among open fields and well-built houses, presents us with the highest type of elementary school

child. I propose to give the figures for the work of 'fair samples' of 8- and 12-year-old boys who attended this school.

TABLE L.

SUMMARIZED RESULTS FROM THE WORK OF EIGHT-YEAR-OLD CHILDREN, SCHOOL E.

Standard.	No. of boys.	Average Age. Yrs.	Mths.	First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Corrections.
II	5	8	2.6	26.4	28.0	34.0	30.8	8.4
III	4	8	4.8	23.0	26.8	25.8	28.5	9.3
IV	1	8	9.0	34.0	38.0	46.0	33.0	9.0
All Standards.	10	8	4.1	25.8	28.5	31.9	30.1	8.8
M. V.....				5.2	3.1	5.5	3.3	1.4

TABLE LI.

SUMMARIZED RESULTS FROM THE WORK OF TWELVE-YEAR-OLD CHILDREN, SCHOOL E.

Standard.	No. of boys.	Average Age. Yrs.	Mths.	First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Corrections.
V	5	12	2.8	30.0	32.6	36.0	31.8	9.2
VI	2	12	0.0	34.5	30.5	38.5	32.5	8.5
VII	3	12	7.0	28.7	35.0	32.0	35.3	7.0
All Standards.	10	12	3.5	30.5	32.9	35.3	33.0	8.4
M. V.....				5.0	4.1	4.8	3.6	2.6

Comments on Table L and Table LI.

The work of the 8-year-old children in School E is slightly inferior in several aspects to that of the 8-year-old children of School D. The former are 3 months younger, which may account for the inferiority. But they are superior in one important respect; their second interrogatory is better than their first,

which is indeed the rule and not the exception. But the important point is the 'closeness' of the figures for the children of this age in the two widely different schools. We are compelled, I think, to entertain the hypothesis that for boys there may be no great closeness of positive relationship between general mental ability and *natural* proficiency in these exercises, since without doubt the 8-year-old boys of School E are mentally much superior to those of School D. And the 12-year-old pupils of the two schools show similar relationships in these *Aussage* exercises. The 'slum' school boys are slightly superior in oral reporting; but their interrogatories are poorer and they remember less from one week to the next. The relationships between the work of School E (working orally) and that of School C (with written exercises) are similar on the whole to those between the work of School D and that of School C, except that the boys of School E appear to know more, though they say less about it spontaneously. The boys of School E are, as usual, distinctly below the older infants in proficiency in these exercises, with the exception of the capacity for self-correction.

III. The Work of School F.

This was a 'slum' school in the east of London, attended solely by children of Jewish aliens. It was possible to take a 'fair sample' of 8-year-old children and 'fair samples' of 9-year-old and 10-year-old children, but after Standard IV, the boys were transferred to a neighboring school, consequently no 'fair samples' of 12-year-old children could be obtained. One-third of the experiments

were made by me, the remainder by the Head Master, who had had several years' experience of work in experimental pedagogy.

TABLE LII.

SUMMARIZED RESULTS FROM THE WORK OF EIGHT-YEAR-OLD BOYS, SCHOOL F.

Standard.	No. of boys.	Average Age. Yrs.	Mths.	First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Corrections.
I	3	8	0.7	24.7	32.3	38.0	34.0	7.0
II	7	8	3.7	17.4	25.3	25.3	26.8	8.6
III	4	8	4.8	12.5	23.5	18.2	23.5	11.2
All Standards.	14	8	3.9	17.6	26.3	26.0	27.4	9.0
M. V.....				5.7	3.7	7.6	4.6	2.6

Comments on Table LII.

We were a little perplexed at some characteristics which became obvious quite early in the work done in this school, so in order to be quite sure that we were getting a fair sample, we increased from 10 to 14 the number of boys tested. But the result remained unaffected. The work is worse than that of either the South London slum school or the well-placed suburban one. And the children 'go down' as they rise in school standards of pedagogical proficiency. The Standard I boys are best, the Standard II boys are next, and the Standard III boys are worst, though they rise in age, standard by standard, rather than fall. A similar relationship appeared between the Standard I and Standard II 8-year-old boys of School D, and between the Standard II and Standard III boys of School E. In oral work, therefore, the younger boys show a decline in

proficiency as they rise in the school standards—age, of course, remaining constant. The interesting feature in this school is the very rapid and decided decline. This is partly accounted for by a pedagogical factor. Some of the children now in Standard III had been taught to make up a story about a picture, and this practice tended to abstract their attention from the picture itself. Quite apart from this factor, I am not sure that a racial characteristic was not also present, which tended to the loss of marks. There was no lack of fluency in English and many of the children said a great deal, but much of what they said did not result from accurate observations of the picture.

Of course, we have always to remember that there is much written work for boys in the lower standards of the senior schools, and that they have now seriously to 'tackle' reading, writing and arithmetic. Might we not expect just such a standstill of development in observation of this kind and in the oral expression of it as we actually find? Let us suppose the fact is accepted. What shall we do? That will depend upon our ideal of education. If we believe that reading, writing and arithmetic, as ordinarily understood, are of more importance than an observant outlook on things and a fluent accurate expression, whether oral or written, of what is seen, we shall continue our present practices. If not we shall make some changes.

Comments on Table LIII.

Once again we increased our sample so as to make sure it was adequate. There is a rise all round when compared with the work of the 8-year-old boys

TABLE LIII.

SUMMARIZED RESULTS FROM THE WORK OF NINE-YEAR-OLD BOYS, SCHOOL F.

Standard.	No. of boys.	Average Age. Yrs.	Mths.	First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Corrections.
I	1	9	1	27.0	24.0	31.0	22.0	7.0
II	3	9	3	22.3	26.3	42.3	29.6	10.0
III	6	9	6	26.1	29.5	32.8	31.5	11.5
IV	2	9	5	23.5	26.5	33.0	25.0	15.5
All Standards.	12	9	4.6	24.8	27.7	35.1	29.2	11.4
M. V.....				7.8	2.6	9.1	3.0	2.6

—a very considerable one so far as the reports and self-corrections are concerned, but very small indeed in the interrogatories. The same features of fluency and inaccuracy are present as in the work of the 8-year-old boys. It is probably worth noting that the two boys most advanced pedagogically for their age—the two boys in Standard IV—make a very poor show at this work; except in the one feature of self-correction.

TABLE LIV.

SUMMARIZED RESULTS FROM THE WORK OF TEN-YEAR-OLD BOYS, SCHOOL F.

Standard.	No. of boys.	Average Age. Yrs.	Mths.	First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Corrections.
II	2	10	8	32.0	33.5	43.5	36.5	7.0
III	4	10	3	23.0	25.2	29.2	28.2	9.2
IV	6	10	3	26.0	30.0	40.5	31.6	7.8
All Standards.	12	10	4	26.0	29.0	37.2	31.3	8.2
M. V.....				5.8	3.5	8.2	3.9	1.7

Comments on Table LIV.

Twelve boys were selected to form an adequate sample from the various standards in which the 10-year-old boys were to be found. There is a slight advance upon the work of the 9-year-old boys in both the reports and interrogatories; but there is a falling off in self-correction. The same features of fluency and inaccuracy were noticeable as in preceding years. It is probably worth mention that the two boys least advanced pedagogically—those in Standard II—do by far the best work for children of this age.

IV. The Oral Work of the Girls of School C.

Hitherto it has not appeared that the method of taking the reports, interrogatories, and self-corrections orally, rather than in writing, will lead to any serious modification in our conclusions. The younger children in the senior schools work rather better orally than in writing, but the conclusions drawn as to the relative work of infants and older children have not been invalidated. Nor shall we, I think, find them invalidated in the work now about to be described; but there is a marked difference between the oral and the written work of the girls; and the steady progression from infants to older children, which we might reasonably have expected, and have never found, seems here on the verge of realization. This School C was the one in which the written work was done two years previously. "Why, those children had done the work before!" a hasty critic may exclaim. No, they had not; for the 8-year-old children had all passed up from the infants' de-

partments *since* the work had been done. And we had also ten 12-year-old children, who had entered from other schools *since* the *Aussage* work had been taken. All the 8-year-old children now in the school did the exercises, so that in their case we are running no risks from inadequate sampling. As in other instances where the work was done orally, one-third of the reports, interrogatories and self-corrections were heard and written down by me. The remainder were taken by the Head Mistress, who had had several years' experience of work in experimental pedagogy.

TABLE LV.

RESULTS FROM THE ORAL WORK OF EIGHT-YEAR-OLD GIRLS, SCHOOL C.

Standard.	No. of girls.	Average Age. Yrs.	Mths.	First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Corrections.
IIb	5	8	5.2	28.5	32.6	39.6	33.0	13.4
II	14	8	3.8	40.2	31.8	43.3	33.8	14.3
III	7	8	7.0	47.3	32.3	50.9	36.0	11.6
All Standards.	26	8	4.9	39.8	32.1	47.7	34.2	13.4
M. V.				11.2	4.1	11.3	3.5	3.2

TABLE LVI.

RESULTS FROM THE ORAL WORK OF TWELVE-YEAR-OLD GIRLS,

Standard.	No. of girls.	Average Age. Yrs.	Mths.	First Report.	First Interrogatory.	Second Report.	Second Interrogatory.	Self-Corrections.
IV	4	12	1.3	55.5	36.8	73.8	37.3	10.0
V	4	12	2.3	61.0	38.8	80.0	41.0	12.0
VI	2	12	8.0	60.5	43.0	75.5	44.0	8.5
All Standards.	10	12	3.0	58.7	38.8	76.6	40.1	10.5
M. V.				19.8	2.8	18.6	2.9	1.9

Comments on Tables LV and LVI.

Undoubtedly we have here, in the oral work of these girls, some factor or factors which are markedly different from those which have operated in the oral work of the boys in Schools D. E and F. The children of the same age rise in observational proficiency as they rise in standard, whereas the tendency among the boys was rather to fall than to rise. And the oral work of the girls is certainly clearly better than their written work. The 8-year-old children are equal to the best infants in reports and interrogatories, and are better in self-correction; and the oral work of the 12-year-old children shows a very satisfactory advance on that of the children of 8 years of age. How shall we account for these differences between the oral work of the boys and girls? Let us consider the likely hypotheses one by one.

'Girls talk more than boys' is a popular explanation, 'and they go on advancing in loquacity up to (and beyond?) maturity.' This may be so, but what the girls say in these exercises is not mere talk; only accurate observations are counted; they are required to answer the same questions as the boys, and they correct themselves more efficiently. No 'mere talking' hypothesis will account for these things.

'Oh, it's the teaching' is the next explanation freely proffered. Well, I am fully aware that a psychologist frequently bears away to his laboratory work which teems with what he believes to be fruitful conclusions of great moment when he has merely lighted upon some result of a pedagogic

method which he does not understand. We are all liable to errors of that kind. But I hope I am always on my guard against pedagogic influences; my experience as an inspector of schools tends rather to make me over-rate than under-rate them. Do they operate here? Suppose that the teachers of the school, influenced by the *written Aussage* work of two years previous, had directed their oral work by *Aussage* methods. Still these 8-year-old and 12-year-old children are new children, not yet seriously affected by the general methods of the school. And I am quite sure that no specifically similar work had ever been taken with them. Of course, with 8-year-old children their infant-school preparation is very important; and more observational work had been taken in recent years as I have already pointed out; but no such factor operated with the 12-year-old girls who came in from outside, and not from the infants' department.

One important hypothesis remains; "the girls continue," it is said, "to be interested in 'domestic interiors' and the boys do not." For myself, I incline to attach much weight to this hypothesis, supplemented, perhaps, by the more ready oral expression of girls than boys. But even in this very favorable case, the 8-year-old girls are no better than the best infants, except in their power of self-correction. But in the case of the girls there is a decided advance from the 8-year-old to the 12-year-old group, an advance much less noticeable among the boys, both in linguistic expression and actual perception. These differences, however, have by no means been just discovered by an 'oral' method; they were definitely and steadily apparent in the 'written' work.

CHAPTER IX.

SUMMARY AND CONCLUSIONS.

It is contended at the outset that the only method of resolving the vexed questions underlying the discussions about Perception and Observation among psychologists and teachers is, so far as Educational Theory and Practice are concerned, the experimental investigation of them under school conditions. With school children, both boys and girls, from the age of three up to fourteen in six different schools in various parts of London, an attempt has been made to show experimentally what children do actually observe. The senior pupils in the earlier experiments made their reports and answers in writing, whilst the younger children gave theirs orally. In order that the differences between the work of the younger and older children might not be regarded as due merely to the differences in their method of reporting, further reports and answers were obtained orally from senior children in other schools. It seems that the capacity to observe and report grows rapidly from the age of three up to the age of six or seven and then suffers a check. The question is raised whether our changed methods and differences in curriculum are the cause of this set-back in senior schools or whether there is a natural decline of interest and capacity in observational work of this kind in the younger children of senior schools.

We are probably not called upon to make any violent alterations in curriculum for the younger classes of senior schools. It would perhaps be sufficient if more adequate means were taken to secure that our observation lessons were really lessons in perception and accurate expression on the part of the children and not instructional lessons by the teacher. It is doubtful even then whether the natural decline of interest in this work (if it exists) would not bring our results below those of the older children in infant schools (containing children from three to seven). That observational work of a very high character can be obtained from all children is shown by the whole progress of this research. *With few exceptions they know more about their lesson a week afterwards than they do at the time, even when the period of observation is so short that a fatigue factor is excluded.* It is claimed that this result, most pleasing to teachers, is a direct consequence of the method employed, which requires on the part of the child both spontaneous expression and accurate answering to searching examination by the experimenter. For work done in this way children's memories are most surprisingly full and accurate.

In Chapter VI an endeavor has been made to show precisely what it is that children of different ages and of different sexes actually do observe, and also what they neglect to observe. To the teacher, the detailed study of this section will be useful. Subject to the break in progress found in the younger classes of senior schools, a progress which is afterwards resumed, there seems an increasing resistance to suggestion, and an increasing capacity to observe clothing and the position of and relations between things.

In the numerical enumeration of things there seems no great advance, the spontaneous interest in mere numbering seems small.

In the perception of color the results are unexpected. Young children, if they are pleased by colors, appear to be pleased in an emotional way, for they show very little accurate observation and memory of them. Only among the older girls of the senior school, not the boys, are the observations of color really full and good. In this connection it should be mentioned that the curriculum of all English elementary schools is at present supposed to be specially favorable to the acquisition of the perception of color; probably this aspect of the curriculum receives an amount of time which can hardly, from an intellectual point of view, at any rate, be held to have justified itself.

Girls are more proficient than boys both in the linguistic expression of their observations and in the number and accuracy of them; but the subject-matter in this case probably makes more appeal to girls than to boys. I believe that these differences are natural advantages in favor of the girls, but for certainty in this respect we require observations similarly conducted in which the subject-matter favors the boys.

From the standpoint of the Psychologist or the Teacher who uses these *Aussage* exercises as a Mental Test for the proper grading of children, it seems possible with confidence to recommend them for use with children up to the age of seven; but after that age it is very doubtful if the closeness of the relationship between their capacity in this work and

their general mental advance is maintained. For older children more tests are needed than we have at present of what we usually call the 'higher mental faculties, I do not wish it to be understood that I am suggesting that this exercise has no value as a mental test even for older children; but, standing by itself, it would be very uncertain as compared with its reliability with very young children.

Showing the Correlation-coefficients Between the First and Second Reports and the First and Second Sets of Answers for School C, with the Differences Between the Means and the 'Probable Error' of Those Differences.

Standard.	No. of Children.	Av. age. Years.	Months.	1st and 2d Reports. Correlation Coefficient.	Difference Between Means.	Probable Error of the Difference.	1st and 2d Sets of Answers. Correlation Coefficient.	Difference Between Means.	Probable Error of Difference.
Girls.									
VII.....	14	13	2	.57	8.3	3.2	.85	1.4	.4
VI.....	20	12	8	.84	10.2	1.6	.65	1.0	.4
V.....	42	12	2	.74	5.7	1.1	.77	2.6	.3
IV.....	54	10	10	.71	7.3	1.1	.73	1.2	.3
III.....	34	9	10	.57	17.0	1.2	.62	2.8	.2
II.....	34	8	11	.58	2.1	1.0	.73	0.9	.1
Boys.									
VII.....	10	13	8	.35	15.7	2.2	.81	0.5	.6
VI.....	26	13	0	.73	9.9	1.3	.71	2.0	.5
V.....	32	12	3	.43	4.2	1.3	.59	2.1	.4
IV.....	41	11	1	.60	4.9	1.0	.78	1.2	.3
III.....	42	10	3	.68	8.1	0.8	.72	1.9	.4
II.....	49	8	11	.76	0.6	0.6	.71	0.9	.3

NOTE.—The Correlation-coefficients have been calculated from the individual results by means of the Pearson 'r' formula, and the "Probable Errors" of the differences between the means from the formula "p. e." $= .67 \sqrt{\frac{\sigma_1^2 + \sigma_2^2 - 2r\sigma_1\sigma_2.}{n}}$. The meaning of the formulae and the methods of calculation are simply explained in two statistical notes, one in my Monograph *When Should a Child Begin School?* and the other in *Inductive versus Deductive Methods of Teaching*, both published by Warwick & York, Baltimore, U. S. A.

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